

THE 1420
NAUTICAL ALMANAC
AND
ASTRONOMICAL EPHEMERIS
FOR THE YEAR
1799.

PUBLISHED BY ORDER OF THE
COMMISSIONERS OF LONGITUDE.



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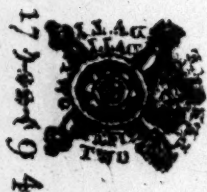
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[Price Three Shillings and Sixpence.]

EXTRACT from the ACT of PARLIAMENT
concerning the Longitude, made in the Fifth
Year of the Reign of His present Majesty.

WHEREAS the Publication of Nautical Almanacs constructed by proper Persons, under the Direction of the said Commissioners, would greatly contribute to make the said Lunar Tables more generally useful; Be it further Enacted, by the Authority aforesaid, That it shall and may be lawful to and for the said Commissioners to cause such Nautical Almanacs, or other useful Tables, to be constructed, and to print, publish, and vend, or cause to be printed, published, and vended, any Nautical Almanac or Almanacs, or other useful Table or Tables, which they, or the major Part of them, shall, from time to time, judge necessary and useful, in order to facilitate the Method of discovering the Longitude at Sea; any Law, Statute, exclusive Privilege, private Charter, or other Custom, to the contrary thereof notwithstanding.

And be it Enacted, by the Authority aforesaid, That no Person or Persons shall print, publish, or vend, or cause to be printed, published, or vended, any Nautical Almanac or Almanacs, or other Table, or Tables constructed under the Direction of the said Commissioners, without being first licensed by the said Commissioners, or the major Part of them: And if any Person or Persons not so licensed, or not being authorised by the Person or Persons so licensed by the said Commissioners, shall print, publish, or vend, or cause to be printed, published, or vended, any such Nautical Almanac or Almanacs, or other Table or Tables, every such Person or Persons shall, for every Copy of such Nautical Almanac or Table so printed, published, or vended, forfeit and pay the Sum of Twenty Pounds; to be recovered by Action of Debt, Bill, Plaint, or Information, in any of His Majesty's Courts of Record at *Westminster*; and that One Moiety of such Penalty and Forfeiture shall be to His Majesty, his Heirs and Successors, and the other Moiety to him or them that shall prosecute, inform, or sue for the same.



EXTRACT of an Act for the Repeal of all former Acts concerning the Longitude at Sea, except so much thereof as relates to the Appointment and Authority of the Commissioners thereby constituted, and also such Clauses as relate to the constructing, printing, publishing, vending, and licensing of Nautical Almanacs and other useful Tables; and for the more effectual Encouragement and Reward of such Person and Persons as shall discover a Method for finding the same, or shall make useful Discoveries in Navigation; and for the better making Experiments relating thereto: Made in the Fourteenth Year of the Reign of His present Majesty,

BE it Enacted by the KING's Most Excellent Majesty, by and with the Advice and Consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the Authority of the same, That each and every of the said recited Acts (save and except such Clause and Clauses in each or any of them as relate to the Appointment or Authority of all or any of the Commissioners thereby respectively constituted, and also such Clause and Clauses as relate to the constructing, printing, publishing, vending, and licensing of Nautical Almanacs, and other useful Tables) shall, from and after the Twenty-fourth Day of *June* One thousand Seven hundred and Seventy-four, be, and are hereby repealed.

And, for a due and sufficient Encouragement to any Person or Persons who shall discover any Method or Methods for finding the said Longitude, Be it Enacted by the Authority aforesaid, That the First Author or Authors, Discoverer or Discoverers, of each and every such Method or Methods, his or their Executors, Administrators, or Assigns, shall be intitled to and have the Rewards or Sums of Money herein-after mentioned; that is to say, In case the Method proposed shall be, by means of a Time-keeper, the Principles whereof have not hitherto been made public, to the Reward or Sum of Five Thousand Pounds, if such Method determines the said Longitude to One Degree of a great Circle, or Sixty geographical Miles; to the Reward or Sum of Seven thousand Five hundred Pounds, if it determines the same to Two Thirds of that Distance; and to the Reward or Sum of Ten thousand Pounds, if it determines the same to One Half of the said Distance: Which respective Rewards shall be due and paid when such Method shall have been sufficiently tried by the following Experiments and

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Voyages to be made and performed by such Persons, and under such Restrictions, as the said Commissioners for the Discovery of Longitude at Sea respectively constituted by the above-recited Acts, or the major Part of them, shall think fit to appoint and direct; (that is to say), When and so soon as Two or more Time-keepers of the same Construction shall have been tried at the same Time, for the Space of Twelve Months, at the Royal Observatory at *Greenwich*, then in Two Voyages round the Island of *Great Britain*, in contrary Directions, and in such other Voyages to different Climates as the said Commissioners shall think fit to direct and appoint; and after their Return from such Voyages, or any of them, for such longer Time, at the said Observatory, not exceeding Twelve Months, as the said Commissioners shall judge necessary; and also when and so soon as the said Commissioners, or Two Thirds of them at the least, shall, after such Experiments and Voyages have been made and performed as aforesaid, have declared and determined that such Method is generally practicable and useful, and sufficiently exact to determine the Longitude at Sea within the Degrees or Limits aforesaid, in all Voyages for the Space of Six Months, (Impediments from cloudy and hazy Weather excepted); and also when and so soon as the Principles and Practice of such Method are fully discovered and explained to the Satisfaction of the said Commissioners, or Two Thirds of them at least; and such Author or Authors, Discoverer or Discoverers, shall have delivered up and assigned over to the said Commissioners, for the Use of the Public, the absolute Property of such Time-keepers as shall have been tried by such Experiments and Voyages as aforesaid, together with all Plates, Descriptions, Theories, and Explanations belonging or relating to the same, and which shall contain the Whole of such Discovery of the Longitude; and in case the Method proposed shall be by means of improved Solar and Lunar Tables, then and in such Case the Author or Authors of such improved Solar and Lunar Tables, their Executors, Administrators, or Assigns, shall be intitled to and have the Reward or Sum of Five Thousand Pounds, if such Solar and Lunar Tables shall prove sufficiently exact to shew the Distance of the Moon from the Sun and Stars in the Heavens within Fifteen Seconds of a Degree, answering to about Seven Minutes of Longitude, after making an allowance of Half a Degree for the Errors of Observation; and when it shall appear to the Satisfaction of the said Commissioners, or Two Thirds of them at least, that such Tables are constructed intirely upon the Principles of Gravitation laid down by *Sir Isaac Newton* (except with respect to those Elements which must necessarily be taken from astronomical Observations), and also when the Truth of such Tables shall have been further confirmed and proved by Comparison with a Series of astronomical Observations made during a Period of Eighteen Years and a Half, which is deemed the Period of the Irregularities of the Lunar Motions; which Reward shall be due and paid, when the said Commissioners, or two Thirds of them at least, shall have declared

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and determined, that such Tables are sufficiently exact to shew the Distance of the Moon from the Sun and Stars in the Heavens, within the limits above-mentioned; and also when the Author or Authors of such improved Solar and Lunar Tables, his or their Executors, Administrators, or Assigns, shall have delivered up and assigned over to the said Commissioners, for the Use of the Public, the absolute Right and Property to and in the same, together with the Theory relating thereunto; and in case any other Method shall be proposed for finding the Longitude at Sea besides those before-mentioned, that then and in such Case the First Author or Authors, Discoverer or Discoverers, of any such Method, his or their Executors, Administrators, or Assigns, shall be intitled to and have the Reward or Sum of Five Thousand Pounds, if it shall determine the said Longitude within One Degree of a great Circle or Sixty geographical miles; to the Reward or Sum of Seven thousand Five hundred Pounds, if it shall determine the same to Two Thirds of that Distance; and to the Reward or Sum of Ten thousand Pounds, if it shall determine the same to One Half of the same Distance; which respective Rewards shall be due and paid, so soon as the said Commissioners, or Two Thirds of them at least, shall, after proper Trial have been made by their Appointment and Direction, have determined that such Method shall be generally practicable and useful for finding the Longitude at Sea within the respective limits above-mentioned.

And be it further Enacted, by the Authority aforesaid, That when and so soon as any such Method or Methods, for the Discovery of the said Longitude, shall be tried, as before-mentioned, and found practicable and useful at Sea, and sufficiently exact to determine the Longitude within any of the Degrees or Limits aforesaid, the said Commissioners, or Two Thirds of them, shall certify the same, under their Hands and Seals, to the Commissioners of the Navy for the Time being, together with the Name or Names of the Person or Persons who shall be the Author or Authors of such Method or Methods; and upon the Receipt of such Certificate, the said Commissioners of the Navy are hereby authorised and required to make out a Bill or Bills upon the Treasurer of the Navy for the respective Sum or Sums of Money to which the Author or Authors of such Proposal, his or their Executors, Administrators, or Assigns, shall be intitled by virtue of this Act; which Sum or Sums the said Treasurer is hereby required to pay to the said Author or Authors, their Executors, Administrators, or Assigns accordingly, out of any Money that may be in his Hands unapplied to the Use of the Navy, according to the true Intent and Meaning of this Act.

And be it further Enacted, by the Authority aforesaid, That the said Commissioners for the Discovery of Longitude at Sea, or any Five or more of them, shall have full Power and Authority to hear and receive any Proposal or Proposals that shall be made to them

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for discovering the said Longitude, or for making any other useful Improvement in Navigation; and in case the said Commissioners, or any Five or more of them, shall be so far satisfied of the Probability of any such Discovery or Improvement as to think it proper to cause Experiments to be made thereof, they shall certify the same, together with the Names of the Author or Authors of such Proposal or Proposals, under their Hands and Seals, to the Commissioners of the Navy, who are hereby authorised and required to make out a Bill or Bills upon the Treasurer of the Navy for any Sum or Sums of Money as the said Commissioners for the Discovery of Longitude at Sea, or any Five or more of them, shall think necessary for making such Experiments; which Sum or Sums the Treasurer of the Navy is hereby required to pay immediately to such Person or Persons as shall be appointed by the said Commissioners to make those Experiments out of any Money which shall be in his the said Treasurer's Hands unapplied as aforesaid,

And be it further Enacted, by the Authority aforesaid, That if any Person or Persons shall make any Discovery for finding the Longitude at Sea, which, though not of so great Use as to be intitled to any of the great Rewards above specified, shall nevertheless be adjudged by the said Commissioners for the Discovery of Longitude at Sea, or the major Part of them, to be of considerable Use to the Public, or shall make any other Discovery or Discoveries, Improvement or Improvements, useful to Navigation; then, and in such Case, such Person or Persons, his or their Executors, Administrators, or Assigns, shall, from time to time, have and receive such less Reward or Sum or Sums of Money as the said Commissioners, or the major Part of them, shall think reasonable; and certify accordingly, under their Hands and Seals, to the Commissioners of the Navy, who are hereby authorised and required to make out a Bill or Bills upon the Treasurer of the Navy for any such Sum or Sums of Money, which the said Treasurer is hereby authorized and required to pay immediately to such Person or Persons, his or their Executors, Administrators, or Assigns, out of any Money that shall be in his the said Treasurer's Hands unapplied as aforesaid,

Provided also, and it is hereby further Enacted, That in case any Person or Persons who shall and may have received any Sum or Sums of Money, by virtue of this Act, as a Reward for any Method of discovering the Longitude at Sea, shall afterwards become intitled to any of the greater Rewards appointed by this Act, for or on account of the same Method; that then, and in such Case, such Sum or Sums of Money as they shall or may have received as aforesaid shall be considered as Part of such greater Reward, and deducted therefrom accordingly; and that no Person shall receive more in the Whole for any One Method for discovering the Longitude at Sea than the greatest Reward appointed for such Method by the Act.

By the COMMISSIONERS appointed by Acts of Parliament for the Discovery of the Longitude at Sea; and for examining, trying, and judging of all Proposals, Experiments, and Improvements relating to the same.

WHEREAS we think fit to employ you to print the Nautical Almanacs and Astronomical Ephemerides for the Years 1796, 1797, 1798, 1799, and 1800; We do, in pursuance of the power vested in us by Acts of Parliament, hereby license, authorize and empower you to print the Nautical Almanacs and Astronomical Ephemerides for those Years accordingly, together with such other useful Tables for facilitating the method of discovering the Longitude at Sea as have been constructed under our direction, and will be delivered to you by the Rev. Dr. NEVIL MASKELYNE, His Majesty's Astronomer Royal, at *Greenwich*; and for so doing this shall be your sufficient Warrant. Given under our Hands and Seals the 12th Day of *July*, 1788.

To Mr. CHRISTOPHER BUCKTON,
Printer,
*Great Pulteney-Street,
Golden-Square.*

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By Command of the Commissioners.

H. PARKER, Secretary.

By the COMMISSIONERS appointed by Acts of Parliament for the Discovery of the Longitude at Sea; and for examining, trying, and judging of all Proposals, Experiments, and Improvements relating to the same.

WHEREAS we think fit to employ you to publish and vend, and to cause to be published and vended, all such Nautical Almanacs and Astronomical Ephemerides, and such other useful Tables, constructed under our Direction, as have hitherto been printed and shall hereafter be printed for the several Years next ensuing, down to the Year 1800 inclusive. We do therefore, in pursuance of the power vested in us by Act of Parliament, hereby license, authorize, and empower you to publish and vend, and to cause to be published and vended, such Nautical Almanacs, and Astronomical Ephemerides, as well as such other useful Tables, constructed under our Direction, as have hitherto been printed, or shall hereafter be printed for the several Years next ensuing, down to the Year 1800 inclusive. For which this shall be your Warrant. Given under our Hands and Seals the 5th Day of *December*, 1789.

To Mr. PETER ELMSLY,
Bookseller,
In the STRAND.

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By Command of the Commissioners.

H. PARKER, Secretary.

P R E F A C E.

THE Commissioners of Longitude, in Pursuance of the Powers vested in them by Act of Parliament, present the Public with the NAUTICAL ALMANAC and ASTRONOMICAL EPHEMERIS for the Year 1799, being the Thirty-third Impression, to be continued annually; a Work which must greatly contribute to the Improvement of Astronomy, Geography, and Navigation. This EPHEMERIS contains every Thing essential to general Use that is to be found in any Ephemeris hitherto published, with many other useful and interesting Particulars never yet offered to the Public in any Work of this Kind. The Tables of the Moon had been brought by the late Professor MAYER, of *Göttingen*, to a sufficient Exactness to determine the Longitude at Sea, within a Degree, as appeared by the Trials of several Persons who made Use of them. The Difficulty and Length of the necessary Calculations seemed the only Obstacles to hinder them from becoming of general Use: To remove which this EPHEMERIS was made; the Mariner being hereby relieved from the Necessity of calculating the Moon's Place from the Tables, and afterwards computing the Distance to Seconds by Logarithms, which are the principal and only very delicate Part of the Calculation; so that the finding the Longitude by the Help of the EPHEMERIS is now in a Manner reduced to the Computation of the Time, an Operation equal to that of an Azimuth, and the Correction of the Distance on Account of Refraction and Parallax, which is also rendered very easy by either of the Two Methods invented, by Mr. LYONS and Mr. DUNTHORNE, and published in the First Edition of the Tables requisite to be used with the EPHEMERIS, and since, with Improvements, in the Second Edition of the same Tables; or by either of the Two Methods annexed to the EPHEMERIS of 1772, being both Improvements of the Method which I formerly published in the BRITISH MARINER'S GUIDE and PHILOSOPHICAL TRANSACTIONS, the First by myself, and the Second by Mr. GEORGE WITCHELL, which are now also annexed to the Second Edition of the REQUISITE TABLES; but still more so by the GENERAL TABLES for correcting the apparent Distance of the Moon and a Star or the Sun from the Effects of Refraction and Parallax, computed at great Expence by Order of the Commissioners of Longitude, and published under the Care of Dr. SHEPHERD, Plumian Professor of Astronomy and Experimental Philosophy at CAMBRIDGE, in 1772.

MAYER's last Manuscript Tables of the Sun and Moon, and his curious and elaborate Theory of the Moon, were received by the

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Board of Longitude, after his decease, for which his Widow received a Reward of Three Thousand Pounds, by Act of Parliament, and the celebrated Mr. LEONARD EULER the Sum of Three Hundred Pounds for having furnished the Theorems made Use of by Mr. MAYER in his Theory. Both the Tables and Theory were printed under my Inspection, and published in 1770.

The Sun's Longitude, and every Thing relating thereto, has been always inserted in the NAUTICAL ALMANAC, as computed from these Tables, from its first Beginning in 1767 to the present Time. The Moon's Place in the Heavens was inserted as calculated directly from MAYER's TABLES, in the NAUTICAL ALMANAC, from 1767 to 1776 inclusive, or the first ten Years. But from the NAUTICAL ALMANAC of 1777 to that of 1788, both inclusive, or the next twelve Years, the Moon's Place was inserted, as calculated from new Tables, improved from MAYER's Tables, composed by Mr. CHARLES MASON, under my Direction, from Calculations made by Order of the Board of Longitude upon the Series of lunar Observations made by the late Dr. BRADLEY, and published in the NAUTICAL ALMANAC of 1774; in which new Tables the Epoch of the Moon's mean Longitude is 1" less, that of the Apogee is 56" less, and that of the ascending Node 45" more than in MAYER's printed Tables, and the Equations are calculated to Tenths of a Second; and moreover one new Equation is introduced, whose Argument is the mean Distance of the Moon from the Sun's Apogee, and Maximum is 16", 4. These Tables compared with the above-mentioned Series of Observations, a proper Allowance being made for the unavoidable Error of Observation, seemed to give always the Moon's Longitude in the Heavens correctly within 45" of a Degree. But from the NAUTICAL ALMANAC of 1789 to that of 1796, both inclusive, the Moon's Place was inserted as calculated from new Tables still farther corrected by Mr MASON, entitled by him TABLES of 1780, as having been completed about that Time, being rendered more exact than the former by the Addition of eight Equations to the Number in MAYER's Tables, taken from MAYER's Theory as to the Arguments, but settled as to the Maxima, from the said Observations, and the Whole being calculated to Tenths of a Second. These last new Tables when compared with 177 of the above-mentioned Series of Observations, being all in the Whole Series in which certain Tables composed by Mr. MASON called Tables of 1778, but less exact than those of 1780, differed above 20" from the Observations, seemed, after making a proper Allowance for the unavoidable Error of Observation, to give always the Moon's Longitude in the Heavens correct within 30 Seconds of a Degree. At the same Time the Error of these Tables in Latitude seemed never to exceed a Minute, which will but triflingly affect the computed Distances of the Moon from the Sun and zodiacal Stars set down in the EPHEMERIS. It may be proper, however, here to

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observe, that the 18th Equation of these Tables, whose Argument is the mean Longitude of the Moon's ascending Node, or the same with that of the last Equation, or that of the Equinoctial Points, has been omitted designedly in the Calculations of the EPHEMERIS, as it does not yet sufficiently appear that such an Equation should arise from the Theory of Gravity, and the Series of Dr. BRADLEY's Observations affords too short a Period to state a Point of such Delicacy as this Equation of not quite 8" from a semi-period only of its Variations.

I shall now offer some Remarks on Mr. MAYER's mean Motions of the Sun and Moon, those of the Moon being taken the same in Mr. MASON's Tables, and propose a small Correction of them, as well as of the Longitudes and Latitudes of the fixt Stars.

Mr. MAYER's Tables of the Sun having been settled from M. DE LA CAILLE's Observations and his own, made between the Years 1750 and 1760, may be supposed to give the Epochs of the mean Places of the Sun pretty exact for that Time. And Mr. MASON's Tables of 1780 having been settled from Dr. BRADLEY's Observations, made also between 1750 and 1760, may be supposed to give the Epochs of the mean Places of the Moon pretty exact for that time. But the Rates of the Sun's and Moon's mean Motions for whole Years or Centuries in the same Tables may require some Correction for the Reasons which I am now to adduce. MAYER, in the Construction of his Tables, assumed the Precession of the Equinoxes, or the annual Motions of the fixt Stars in Longitude, to be exactly $50'',3$, without paying any Regard to the Alteration of the Place of the Equinox arising from the Translation of the Plane of the Ecliptic by the Action of the Planets. Dr. BRADLEY, by comparing his own Observations of Declinations of Stars lying on both Sides of the Equinoctial Colure with the like Observations of TYCHO BRAHE, had found the Precession of the Equinoxes in Longitude to be exactly 1° in $71\frac{1}{2}$ Years, or at the Rate of $50'',35$ in a Year, which is evidently what arises from the Motion of the Plane of the Equator alone, being occasioned by the Actions of the Sun and Moon upon the spheroidical Figure of the Earth. But the Equinoctial Point is also altered, though in a far less Degree, by the continual Motion of the Plane of the Ecliptic, owing to the Action of the Planets, and goes forward $0'',15$ in a Year from that Cause along the Ecliptic, which will diminish the Precession of the Equinoxes, or the apparent annual Motions of the fixt Stars, lying near the Plane of the Ecliptic, in Longitude as much, and reduce them from $50'',35$ to $50'',20$, which is $0'',10$ less than assumed in MAYER's Tables; for as to those which have any considerable Latitude, their Longitudes will be further affected by a secular Variation relative both to their Longitude and Latitude, as expressed in the 44th Table annexed to the 1st Vo-

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June of my Observations made at the Royal Observatory, being derived from the same Cause, the Motion of the Plane of the Ecliptic produced by the Action of the Planets, and its being performed upon an Axis not very remote from the Line of the Equinoxes. It is obvious that the same Cause will also affect the apparent Latitudes of the fixt Stars. Now MAYER having settled the mean Motions of the Sun and Moon from the Equinoxes, by Comparison of Observations made in his Time with those made by Astronomers in former Ages, and particularly by Mr. FLAMSTEAD 60 Years before him, assuming the annual Precession of the Equinoxes to be $50''$, 3 or $0''$, 1 too great, and MAYER's mean Motions of the Moon having been adopted in Mr. MASON's Tables, therefore the annual mean Motions of the Sun and Moon from the Equinox in MAYER's Tables, and the Moon's mean Motions in Mr. MASON's Tables are too great by $0''$, 10 in a Year, and must be diminished accordingly, or at the Rate of $10''$ in a Hundred Years; agreeable to Schol. 3, Prob. 3, of the Explanation and Use of MAYER's Solar and Lunar Tables; where he insists that their mean Motions are rightly settled from Observations, or very nearly so, with respect to the fixed Stars; but if it should be thought proper to state the Precession of the Equinox slower or quicker than $50''$, 3 in a Year, the mean Motions of the Sun and Moon should be all made slower or quicker by the same Quantity.

Hence as the Observations by which Mr. MAYER settled the Epochs of his solar Tables, and by which Mr. MASON settled the Epochs of his lunar Tables of 1780, were made about the Year 1756 at a Medium, the Correction of $0''$, 10 in a Year, above directed to be made to the Moon's Motions, should be dated from that Period; or there should be subtracted at the Rate of $1''$ in 10 Years from the Epochs after 1756, and be added at the same Rate to the Epochs before 1756, in Mr. MAYER's and Mr. MASON's Tables.

The Longitudes of the Stars of Dr. BRADLEY's Catalogue, inserted in the NAUTICAL ALMANAC of 1773, having been likewise settled from his Observations made about the Year 1756, and carried on to the Year 1760 by the annual Precession $50''$, 35, should be first reduced back to the Beginning of 1756 by the same annual Precession $50''$, 35 which he used, and then carried forward to any future Period, or backward to any preceding one, by the true annual Precession of the Equinoxes $50''$, 20 for every Year following or preceding 1756, and further corrected by the Equation of the secular Motion derived from my 44th Table. The Latitudes of the fixt Stars contained in the same Catalogue should also be corrected by the secular Equation derived from my 45th Table, according to the Number of the Years before or after 1756.

In the Interval of 41 Years, which have elapsed since 1756, to the Year 1797, these Corrections having amounted to $4''$, 1 in the

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Epochs of Longitude of the Sun and Moon, and to $13''$ in the Longitude of some of the Stars from which the Moon's Distances are computed in the EPHEMERIS, and to $20''$ in some of their Latitudes, it has been thought proper to allow for them: Therefore the Sun's Place in this EPHEMERIS and the succeeding ones will be found computed from MAYER's Tables, and the Moon's Place from Mr. MASON's Tables of 1780, both corrected in the Manner above-mentioned, and the Distances of the Moon from the Stars will be found computed from their Longitudes, carried on and corrected as above-mentioned; their Latitudes too should have been taken according to the Corrections above-mentioned, but the general Tables of Moon's Distances from the particular Stars having been made Use of as far as the EPHEMERIS of 1802 inclusive, in which the Latitudes of the Stars have been taken which belong to the Year 1780, those Corrections could not be applied; the Error resulting, however, will be very trifling. But in the EPHEMERIS of 1803 the Latitudes as well as Longitudes of the Stars are proposed to be thoroughly corrected; and the Moon's Distances from them computed by the late Mr. TAYLOR's accurate Tables of Logarithmic Sines and Tangents to every Second of the Quadrant.

To illustrate these Corrections by Examples:—Let it be required to find the Sun's mean Longitude and that of his Apogee, by MAYER's Tables; and the Moon's mean Longitude, and mean Anomaly, and the mean Longitude of her Node; and the mean Longitude and Latitude of Fomalhaut, all to the Beginning of 1797. The Sun's mean Longitude will be $9^{\circ}. 10'. 37''. 28''$, 6, and the Longitude of his Apogee $3^{\circ}. 9'. 29''. 11''$, 9. The Moon's mean Longitude $10^{\circ}. 7'. 34''. 30''$, 7, and with Acceleration $10^{\circ}. 7'. 34''. 39''$, 2. Her mean Anomaly $0^{\circ}. 24'. 6''. 53''$, and with Acceleration $0^{\circ}. 24'. 7''. 1''$, 5 and the Longitude of her Node, $3^{\circ}. 1'. 15''. 1''$, 9. The Longitude of Fomalhaut, $11^{\circ}. 0'. 59''. 58''$, 9 and its Latitude, $21^{\circ}. 6'. 35''$, 0 South; its Variation of Longitude in 100 Years different from the mean Precession, at the Rate of $50''$, 20 in a Year, by Table 44 being $+ 17''$, 3 and its Variation of Latitude in the same Time by Table 45, being $+ 17''$, 2.

The Calculations of the Planets Places have been made for this EPHEMERIS from M. DE LA LANDE's Tables contained in the Second Edition of his Astronomy, as they have been for every EPHEMERIS beginning with that of 1780; and those of the Eclipses of Jupiter's Satellites made from Mr. WARGENTIN's Tables annexed to the same Tables of M. DE LA LANDE, excepting the Eclipses of Jupiter's Second Satellite, which are inserted in this EPHEMERIS for the Nineteenth Time from new Tables transmitted to me from their learned Author, the late Mr. WARGENTIN, Secretary to the Royal Academy of Sciences at STOCKHOLM, and published at the End of the Nautical Almanac of 1779.

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All the Articles of the EPHEMERIS were computed by two separate Persons, and examined by a third, except the Moon's Longitude, Latitude, Right Ascension, Declination, Semidiameter, and Parallax, which for Noon were computed by one Person, and for Midnight by another, and the Truth of these Calculations ascertained by Means of Differences, which for the Moon's Longitude were carried as far as the Fourth Order.

NEVIL MASKELYNE,

ASTRONOMER ROYAL.

GREENWICH,

Dec. 2, 1791.

EXPLANATION OF THE CHARACTERS

USED IN THE

ASTRONOMICAL EPHEMERIS.

The P L A N E T S, &c.

☉ The Sun.	♂ Mars.
☾ The Moon.	♃ Jupiter.
☿ Mercury.	♄ Saturn.
♀ Venus.	♅ Georgian.
♁ The Earth.	

- ♊ The Moon's, or any other Planet's Ascending Node.
- ♋ The Descending Node.
- ♌ Conjunction, or Planets situated in the same Longitude.
- ☐ Quadrature, or Planets situated in Longitudes differing 3 Signs from each other.
- ♍ Opposition, or Planets situated in opposite Longitudes, or differing 6 Signs from each other.

N. North.	Inf. Inferior.	Im. Immersion.
S. South.	Sup. Superior.	Em. Emerfion.

S I G N S of the Z O D I A C.

S.	S.
0 ♈ Aries.	6 ♎ Libra
1 ♉ Taurus.	7 ♏ Scorpio.
2 ♊ Gemini.	8 ♐ Sagittarius.
3 ♋ Cancer.	9 ♑ Capricornus.
4 ♌ Leo.	10 ♒ Aquarius.
5 ♍ Virgo.	11 ♓ Pisces.

PRINCIPAL ARTICLES

O F

THE ALMANAC OF 1799.

Chronological Cycles.

Dominical Letter	- - - F.
Lunar Cycle, or Golden Numb.	14
Epact	- - - 23
Solar Cycle	- - - 16
Roman Indiction	- - - 2

Ember Days.

Feb.	- - -	13, 15 and 16
May	- - -	15, 17 and 18
September	- - -	18, 20 and 21
December	- - -	18, 20 and 21

MOVEABLE FEASTS.

Septuagesima Sunday	- Jan. 20	Low Sunday	- - - - Mar. 31
Quinq. or Shrove Sund.	Feb. 3	Rogation Sunday	- - - Apr. 28.
Ash Wed. or 1st day of Lent	Feb. 6	Asc. Day, or Holy Thurs.	May 2
Midlent Sunday	- - - Mar. 3	Whitsunday	- - - - May 12
Palm Sunday	- - - - Mar. 17	Trinity Sunday	- - - May 19
EASTER DAY	- - - - Mar. 24	Advent Sunday	- - - Dec. 1

T E R M S.

London.			Oxford.		Cambridge.	
Names	Begins	Ends	Begins	Ends	Begins	Ends
Hilary, or Lent.	Jan. 23	Feb. 12	Jan. 14	Mar. 16	{ Jan. 13	_____
					{ Div. Feb. 12	Midn.
					_____	Mar. 15
Easter	April 10	May 6	April 3	May 9	{ April 3	_____
					{ Div. May 19	Midn.
Trinity or Act }	May 24	June 12	May 22	July 13	_____	July 5
Michael.	Nov. 6	Nov. 28	Oct. 10	Dec. 17	{ Oct. 10	_____
					{ Div. Nov. 12	Midn.
					_____	Dec. 16

Oxford Act July 8. — Camb. Commencement July 2.

O B L I Q U I T Y, &c.

Obliquity of the Ecliptic.		1799		Equation of Equinoctial Points.	
D. M.	S.				S.
23. 27. 58, 0	- - - - -	Jan. 1.	- - - - -	-	14, 3
23. 27. 58, 4	- - - - -	Apr. 1.	- - - - -	-	13, 3
23. 27. 58, 9	- - - - -	July 1.	- - - - -	-	12, 2
23. 27. 59, 3	- - - - -	Oct. 1.	- - - - -	-	11, 1
23. 27. 59, 6	- - - - -	Dec. 31.	- - - - -	-	9, 9

S O L A R E C L I P S E S IN THE YEAR 1799.

May 4. *SUN eclipsed, invisible.*

♂ at 12^h. 14^h $\frac{1}{2}$, in Long. 1°. 14°. 27', D's Lat. 7'. S.
 ☉ will be centrally eclipsed on the Merid. at 12^h. 9^h $\frac{1}{2}$
 in Long. 177°. 37^h $\frac{1}{2}$ East, and Lat. 8°. North.

Oct. 28. *SUN eclipsed, invisible.*

♂ at 5^h. 35^h $\frac{3}{4}$, in Long. 7°. 5°. 19', D's Lat. 7^h $\frac{1}{2}$. N.
 ☉ will be centrally eclipsed on the Merid. at 5^h. 31'.
 in Long. 82° $\frac{3}{4}$ West, and Lat. 5° $\frac{1}{4}$ South.

I. JANUARY 1799.

Days of the Week.	Days of the Month.	Sundays, Holidays, Terms, &c.	Phases of the MOON.
			D. H. M.
			● New Moon - - - - 5. 16. 14
			☾ First Quarter - - - - 13. 15. 58
			○ Full Moon - - - - 21. 5. 41
			☾ Last Quarter - - - - 27. 22. 50
			Other Phenomena.
			D. H. M.
			1. 0. 22 $\frac{1}{4}$ I. α $\approx$, * $15\frac{5}{10}$ N of D's C.
			1. 0. 29 $\frac{1}{4}$ E. α $\approx$, * 10 N of D's C.
			1. - - - 8 Stationary.
Tu.	1	Circumcision.	1. 21. 51 ☾ $\times$ $\approx$
W.	2		2. 2. 34 ☾ λ $\approx$
Th.	3		2. 6. 13 ☾ δ η
F.	4		7. - - - δ ϵ $\times$, * 47' North.
Sa.	5		8. 2. 55 ☾ ϵ ν
Sun.	6	Epiphany.	10. - - - 24 Stationary.
M.	7		10. 6. 47 ☾ 2 ad $\downarrow$ $\approx$
Tu.	8	Lucian.	10. 6. 55 ☾ 3 ad $\downarrow$ $\approx$
W.	9		11. - - - δ ϵ $\times$, * 36' South.
Th.	10		15. 13. 48 $\frac{2}{3}$ I. 24, 24 $\frac{5}{12}$ N. of D's C.
F.	11		15. 14. 40 $\frac{1}{2}$ E. 24, 24 $\frac{5}{12}$ N. of D's C.
Sa.	12		18. 9. 20 ☾ 125 δ
Sun.	13	1st Su. aft. Ep. Hil. Cam.	19. 11. 8 ☉ enters $\approx$
M.	14	Oxf. T. beg. [T. beg.	20. 11. 7 ☾ $\times$ Π
Tu.	15		20. 20. 37 ☾ 2 ad $\downarrow$ $\approx$
W.	16		22. - - - 8 Stationary.
Th.	17		22. 20. 21 ☾ η Ω
F.	18	Qu. Charl. birth-day kept.	25. 17. 19 $\frac{3}{4}$ I. γ η , * 4' N. of D's C.
Sa.	19	[Prisca. [bian.	25. 18. 21 E. γ η , * 9 $\frac{1}{4}$ N. of D's C.
Sun.	20	Septuagesima-Sunday. Fa-	26. 7. 25 ☾ θ η
M.	21	In 8 days of St. H. 1 ret.	26. - - - δ π $\dagger$, * 39' South.
Tu.	22	Vincent.	27. 15. 9 ☾ λ ν
W.	23	Hilary Term begins.	28. 5. 8 ☾ α $\approx$
Th.	24		29. 3. 14 ☾ $\times$ $\approx$
F.	25	Conversion of St. Paul.	29. 8. 1 ☾ λ $\approx$
Sa.	26		29. 11. 41 ☾ δ η
Sun.	27	Sexag. Su. Pr. Aug. Fr. b.	30. 21. 17 ☾ θ Ophiuchi.
M.	28	From St. Hil. in 15 days	
Tu.	29	[2 ret.	
W.	30	K. Charles I. Martyr.	
Th.	31		

Days of the Week.	Days of the Month.	THE S U N's			Equation of Time.	Diff.
		Longitude.	R ^t . Ascen. <i>in Time.</i>	Declin. <i>South.</i>		
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	S.
Tu.	1	9. 11. 11. 3	18. 48. 39, 3	22. 59. 40	4. 7, 6	28, 2
W.	2	9. 12. 12. 15	18. 53. 4, 1	22. 54. 18	4. 35, 8	27, 8
Th.	3	9. 13. 13. 27	18. 57. 28, 5	22. 48. 29	5. 3, 6	27, 5
F.	4	9. 14. 14. 39	19. 1. 52, 6	22. 42. 12	5. 31, 1	27, 0
Sa.	5	9. 15. 15. 52	19. 6. 16, 3	22. 35. 29	5. 58, 1	26, 6
Sun.	6	9. 16. 17. 4	19. 10. 39, 5	22. 28. 18	6. 24, 7	26, 0
M.	7	9. 17. 18. 15	19. 15. 2, 2	22. 20. 41	6. 50, 7	25, 6
Tu.	8	9. 18. 19. 27	19. 19. 24, 4	22. 12. 38	7. 16, 3	25, 0
W.	9	9. 19. 20. 37	19. 23. 46, 1	22. 4. 9	7. 41, 3	24, 5
Th.	10	9. 20. 21. 48	19. 28. 7, 1	21. 55. 13	8. 5, 8	23, 9
F.	11	9. 21. 22. 57	19. 32. 27, 6	21. 45. 53	8. 29, 7	23, 2
Sa.	12	9. 22. 24. 6	19. 36. 47, 4	21. 36. 7	8. 52, 9	22, 5
Sun.	13	9. 23. 25. 14	19. 41. 6, 6	21. 25. 55	9. 15, 4	21, 9
M.	14	9. 24. 26. 21	19. 45. 25, 1	21. 15. 20	9. 37, 3	21, 2
Tu.	15	9. 25. 27. 27	19. 49. 42, 9	21. 4. 19	9. 58, 5	20, 5
W.	16	9. 26. 28. 32	19. 54. 0, 0	20. 52. 55	10. 19, 0	19, 7
Th.	17	9. 27. 29. 36	19. 58. 16, 4	20. 41. 7	10. 38, 7	19, 0
F.	18	9. 28. 30. 40	20. 2. 32, 0	20. 28. 55	10. 57, 7	18, 3
Sa.	19	9. 29. 31. 42	20. 6. 46, 8	20. 16. 21	11. 16, 0	17, 5
Sun.	20	10. 0. 32. 43	20. 11. 0, 9	20. 3. 23	11. 33, 5	16, 7
M.	21	10. 1. 33. 44	20. 15. 14, 2	19. 50. 3	11. 50, 2	15, 9
Tu.	22	10. 2. 34. 44	20. 19. 26, 8	19. 36. 21	12. 6, 1	15, 2
W.	23	10. 3. 35. 42	20. 23. 38, 6	19. 22. 18	12. 21, 3	14, 4
Th.	24	10. 4. 36. 41	20. 27. 49, 6	19. 7. 52	12. 35, 7	13, 6
F.	25	10. 5. 37. 38	20. 31. 59, 8	18. 53. 6	12. 49, 3	12, 8
Sa.	26	10. 6. 38. 35	20. 36. 9, 2	18. 37. 59	13. 2, 1	12, 1
Sun.	27	10. 7. 39. 31	20. 40. 17, 8	18. 22. 32	13. 14, 2	11, 2
M.	28	10. 8. 40. 26	20. 44. 25, 6	18. 6. 45	13. 25, 4	10, 5
Tu.	29	10. 9. 41. 21	20. 48. 32, 7	17. 50. 38	13. 35, 9	9, 6
W.	30	10. 10. 42. 15	20. 52. 38, 9	17. 34. 13	13. 45, 5	8, 8
Th.	31	10. 11. 43. 8	20. 56. 44, 3	17. 17. 28	13. 54, 3	

III. JANUARY 1799. 3

Days	Time of ☉'s Semidiam. pass ^s Merid.	THE SUN'S			Place of the ☉'s Node.
	M. S.	Semi- diameter	Hourly Motion.	Logar. Distance.	S. D. M.
1	1. 10, 9	16. 19, 2	2. 32, 9	9. 992654	1. 22. 32
7	1. 10, 6	16. 19, 1	2. 32, 8	9. 992726	1. 22. 13
13	1. 10, 1	16. 18, 9	2. 32, 8	9. 992856	1. 21. 54
19	1. 9, 5	16. 18, 3	2. 32, 6	9. 993062	1. 21. 35
25	1. 8, 9	16. 17, 6	2. 32, 4	9. 993367	1. 21. 16

ECLIPSES of the SATELLITES of JUPITER.

I. Satellite.		II. Satellite.		III. Satellite.	
<i>Emerfions.</i>		<i>Emerfions.</i>			
Days.	H. M. S.	Days.	H. M. S.	Days.	H. M. S.
2	2. 55. 15	* 2	13. 8. 1	5	1. 26. 0 Im.
3	21. 23. 18	6	2. 25. 8	5	3. 25. 25 E.
5	15. 51. 22	9	15. 42. 19	* 12	5. 24. 18 Im.
* 7	10. 19. 30	13	4. 59. 34	* 12	7. 24. 36 E.
9	4. 47. 37	16	18. 16. 55	* 19	9. 23. 13 Im.
10	23. 15. 51	* 20	7. 34. 26	* 19	11. 24. 24 E.
12	17. 44. 0	23	20. 52. 2	26	13. 22. 52 Im.
* 14	12. 12. 19	* 27	10. 9. 45	26	15. 24. 55 E.
* 16	6. 40. 36	30	21. 3. 56 Im.		
18	1. 8. 56	30	23. 27. 37 E.		
19	19. 37. 19				
21	14. 5. 43				
* 23	8. 34. 11				
25	3. 2. 42				
26	21. 31. 15				
28	15. 59. 51				
* 30	10. 28. 29				
				IV. Satellite. Conj.	
				5	23. 9 Inf.
				* 14	8. 26 Sup.
				22	15. 56 Inf.
				31	1. 46 Sup.

THE PLANETS							
Days	Heliocentric		Geocentric		Declin.	Passage	
	Long.	Lat.	Long.	Lat.		Merid.	
	S. D. M.	D. M.	S. D. M.	D. M.		D. M.	H. M.
♿ MERCURY. Inf. 6 10 ^d . 19 ^h .							
1	1. 20. 6	0. 30 N	9. 28. 20	0. 12 N	20. 20 S		1. 13
4	2. 8. 47	2. 43	9. 27. 55	1. 7	19. 31		0. 57
7	2. 27. 43	4. 40	9. 25. 46	2. 3	18. 59		0. 34
10	3. 16. 16	6. 5	9. 22. 17	2. 51	18. 49		0. 6
13	4. 3. 51	6. 51	9. 18. 22	3. 21	18. 53		23. 28
16	4. 20. 6	6. 59	9. 15. 4	3. 28	19. 12		23. 3
19	5. 4. 56	6. 37	9. 12. 59	3. 16	19. 35		22. 43
22	5. 18. 22	5. 55	9. 12. 17	2. 52	20. 3		22. 30
25	6. 0. 35	5. 0	9. 12. 46	2. 22	20. 30		22. 21
28	6. 11. 46	3. 57	9. 14. 15	1. 50	20. 54		22. 16
31	6. 22. 7	2. 50	9. 16. 26	1. 17	21. 11		22. 14
♀ VENUS. 8 12 ^d . 7 ^h .							
1	9. 12. 17	1. 34 S	9. 11. 39	0. 40 S	23. 37 S		0. 2
7	9. 21. 46	2. 2	9. 19. 12	0. 52	22. 57		0. 9
13	10. 1. 15	2. 27	9. 26. 45	1. 3	21. 52		0. 15
19	10. 10. 44	2. 48	10. 4. 17	1. 12	20. 23		0. 21
25	10. 20. 14	3. 5	10. 11. 49	1. 19	18. 32		0. 27
♂ MARS. 8 12 ^d . 7 ^h .							
1	1. 22. 12	0. 8 N	0. 10. 46	0. 10 N	4. 26 N		5. 50
7	1. 25. 28	0. 14	0. 14. 22	0. 18	5. 57		5. 37
13	1. 28. 43	0. 20	0. 18. 0	0. 25	7. 27		5. 24
19	2. 1. 55	0. 26	0. 21. 41	0. 31	8. 56		5. 12
25	2. 5. 6	0. 32	0. 25. 23	0. 37	10. 24		5. 1
♃ JUPITER. 8 12 ^d . 7 ^h .							
1	1. 25. 48	0. 54 S	1. 16. 36	1. 2 S	15. 50 N		8. 8
7	1. 26. 20	0. 54	1. 16. 28	1. 0	15. 49		7. 41
13	1. 26. 52	0. 53	1. 16. 28	0. 59	15. 51		7. 15
19	1. 27. 24	0. 53	1. 16. 36	0. 57	15. 55		6. 50
25	1. 27. 56	0. 52	1. 16. 51	0. 55	16. 0		6. 26
♄ SATURN. 8 12 ^d . 7 ^h .							
1	3. 22. 17	0. 1 N	3. 23. 37	0. 1 N	21. 25 N		12. 51
7	3. 22. 30	0. 1	3. 23. 8	0. 2	21. 31		12. 22
13	3. 22. 43	0. 2	3. 22. 38	0. 2	21. 36		11. 54
19	3. 22. 57	0. 3	3. 22. 9	0. 3	21. 42		11. 27
25	3. 23. 10	0. 3	3. 21. 40	0. 4	21. 47		11. 0
♅ GEORGIAN. 8 12 ^d . 7 ^h .							
1	5. 19. 40	0. 46 N	5. 22. 36	0. 47 N	3. 39 N		16. 42
11	5. 19. 48	0. 46	5. 22. 31	0. 47	3. 42		15. 58
21	5. 19. 56	0. 46	5. 22. 20	0. 48	3. 46		15. 15

Days of the Week.	Days of the Month.	THE MOON'S					
		Longitude.			Latitude.		
		Noon.			Midnight.		
		S. D. M. S.	S. D. M. S.	S. D. M. S.	D. M. S.	D. M. S.	D. M. S.
Tu.	1	7. 12. 18. 42	7. 19. 16. 0	1. 3. 9 N	0. 25. 58 N		
W.	2	7. 26. 11. 38	8. 3. 5. 26	0. 11. 27 S	0. 48. 31 S		
Th.	3	8. 9. 57. 13	8. 16. 46. 46	1. 24. 37	1. 59. 16		
F.	4	8. 23. 33. 49	9. 0. 18. 8	2. 31. 57	3. 2. 15		
Sa.	5	9. 6. 59. 26	9. 13. 37. 28	3. 29. 44	3. 54. 7		
Sun.	6	9. 20. 12. 0	9. 26. 42. 50	4. 15. 7	4. 32. 34		
M.	7	10. 3. 9. 49	10. 9. 32. 52	4. 46. 18	4. 56. 18		
Tu.	8	10. 15. 51. 56	10. 22. 7. 6	5. 2. 32	5. 5. 4		
W.	9	10. 28. 18. 28	11. 4. 26. 16	5. 3. 57	4. 59. 21		
Th.	10	11. 10. 30. 47	11. 16. 32. 22	4. 51. 22	4. 40. 12		
F.	11	11. 22. 31. 27	11. 28. 28. 32	4. 26. 0	4. 9. 0		
Sa.	12	0. 4. 24. 9	0. 10. 18. 56	3. 49. 21	3. 27. 18		
Sun.	13	0. 16. 13. 28	0. 22. 8. 26	3. 3. 1	2. 36. 44		
M.	14	0. 28. 4. 29	1. 4. 2. 20	2. 8. 40	1. 39. 4		
Tu.	15	1. 10. 2. 39	1. 16. 6. 7	1. 8. 9	0. 36. 14 S		
W.	16	1. 22. 13. 22	1. 28. 24. 59	0. 3. 34 S	0. 29. 30 N		
Th.	17	2. 4. 41. 34	2. 11. 3. 33	1. 2. 36 N	1. 35. 20		
F.	18	2. 17. 31. 20	2. 24. 5. 11	2. 7. 20	2. 38. 5		
Sa.	19	3. 0. 45. 18	3. 7. 31. 39	3. 7. 7	3. 33. 57		
Sun.	20	3. 14. 24. 3	3. 21. 22. 15	3. 58. 4	4. 18. 55		
M.	21	3. 28. 25. 48	4. 5. 34. 3	4. 36. 4	4. 49. 7		
Tu.	22	4. 12. 46. 14	4. 20. 1. 30	4. 57. 41	5. 1. 32		
W.	23	4. 27. 18. 56	5. 4. 37. 38	5. 0. 30	4. 54. 32		
Th.	24	5. 11. 56. 40	5. 19. 15. 7	4. 43. 44	4. 28. 19		
F.	25	5. 26. 32. 14	6. 3. 47. 21	4. 8. 32	3. 44. 48		
Sa.	26	6. 10. 59. 54	6. 18. 9. 29	3. 17. 36	2. 47. 28		
Sun.	27	6. 25. 15. 50	7. 2. 18. 45	2. 14. 55	1. 40. 32		
M.	28	7. 9. 18. 11	7. 16. 14. 9	1. 4. 54 N	0. 28. 35 N		
Tu.	29	7. 23. 6. 43	7. 29. 56. 1	0. 7. 50 S	0. 43. 51 S		
W.	30	8. 6. 42. 9	8. 13. 25. 16	1. 18. 56	1. 52. 38		
Th.	31	8. 20. 5. 28	8. 26. 42. 55	2. 24. 29	2. 54. 7		

THE MOON'S							
Days of the Week.	Days of the Month.	Age.	Passage Merid.	Right Ascension.		Declination.	
				Noon.	Midnight.	Noon.	Midnight.
			D. H. M.	D. M.	D. M.	D. M.	D. M.
Tu.	1	26	20. 35	220. 12	226. 56	14. 33 S	17. 9 S
W.	2	27	21. 30	233. 49	240. 53	19. 30	21. 36
Th.	3	28	22. 26	248. 5	255. 25	23. 22	24. 47
F.	4	29	23. 23	262. 51	270. 20	25. 50	26. 30
Sa.	5	1	0	277. 49	285. 15	26. 46	26. 39
Sun.	6	2	0. 20	292. 33	299. 43	26. 9	25. 18
M.	7	3	1. 14	306. 40	313. 25	24. 7	22. 38
Tu.	8	4	2. 4	319. 56	326. 14	20. 54	18. 57
W.	9	5	2. 50	332. 18	338. 11	16. 49	14. 32
Th.	10	6	3. 33	343. 54	349. 27	12. 7	9. 37
F.	11	7	4. 14	354. 54	0. 15	7. 3	4. 25 S
Sa.	12	8	4. 53	5. 33	10. 50	1. 45 S	0. 55 N
Sun.	13	9	5. 32	16. 7	21. 27	3. 34 N	6. 12
M.	14	10	6. 13	26. 51	32. 21	8. 48	11. 20
Tu.	15	11	6. 55	38. 0	43. 49	13. 46	16. 6
W.	16	12	7. 41	49. 49	56. 3	18. 17	20. 19
Th.	17	13	8. 30	62. 31	69. 15	22. 8	23. 42
F.	18	14	9. 24	76. 13	83. 26	24. 59	25. 58
Sa.	19	15	10. 21	90. 51	98. 25	26. 35	26. 49
Sun.	20	16	11. 21	106. 7	113. 51	26. 38	26. 2
M.	21	17	12. 20	121. 34	129. 13	25. 0	23. 34
Tu.	22	18	13. 17	136. 45	144. 7	21. 45	19. 35
W.	23	19	14. 12	151. 19	158. 20	17. 7	14. 23
Th.	24	20	15. 3	165. 11	171. 54	11. 27	8. 22
F.	25	21	15. 53	178. 29	184. 58	5. 11 N	1. 56 N
Sa.	26	22	16. 42	191. 24	197. 49	1. 20 S	4. 33 S
Sun.	27	23	17. 32	204. 14	210. 42	7. 41	10. 43
M.	28	24	18. 23	217. 15	223. 54	13. 35	16. 16
Tu.	29	25	19. 16	230. 41	237. 35	18. 42	20. 52
W.	30	26	20. 11	244. 37	251. 46	22. 45	24. 18
Th.	31	27	21. 7	259. 1	266. 20	25. 30	26. 20

Days of the Week.	Days of the Month.	THE MOON'S				Proportional Logarithm.	
		Semidiameter.		Hor. Parallax.			
		Noon.	Midnight.	Noon.	Midnight.		
		M. S.	M. S.	M. S.	M. S.	Noon.	Midn.
Tu.	1	16. 4	16. 2	58. 58	58. 51	4846	4855
W.	2	15. 59	15. 57	58. 41	58. 31	4867	4880
Th.	3	15. 54	15. 50	58. 20	58. 7	4893	4910
F.	4	15. 46	15. 42	57. 53	57. 38	4927	4946
Sa.	5	15. 38	15. 34	57. 23	57. 6	4965	4986
Sun.	6	15. 29	15. 24	56. 49	56. 32	5008	5029
M.	7	15. 20	15. 15	56. 15	55. 58	5051	5073
Tu.	8	15. 10	15. 6	55. 41	55. 25	5095	5116
W.	9	15. 2	14. 58	55. 10	54. 57	5136	5153
Th.	10	14. 55	14. 53	54. 46	54. 36	5167	5181
F.	11	14. 51	14. 49	54. 29	54. 24	5190	5197
Sa.	12	14. 49	14. 49	54. 21	54. 21	5201	5201
Sun.	13	14. 49	14. 51	54. 23	54. 28	5198	5191
M.	14	14. 52	14. 55	54. 35	54. 46	5182	5167
Tu.	15	14. 59	15. 3	54. 59	55. 14	5150	5130
W.	16	15. 8	15. 13	55. 32	55. 51	5107	5082
Th.	17	15. 19	15. 25	56. 12	56. 34	5055	5027
F.	18	15. 31	15. 38	56. 58	57. 22	4996	4966
Sa.	19	15. 44	15. 51	57. 46	58. 9	4936	4907
Sun.	20	15. 57	16. 3	58. 32	58. 53	4878	4853
M.	21	16. 8	16. 13	59. 13	59. 30	4828	4808
Tu.	22	16. 16	16. 19	59. 43	59. 54	4792	4778
W.	23	16. 22	16. 23	60. 2	60. 7	4769	4763
Th.	24	16. 23	16. 23	60. 9	60. 8	4760	4761
F.	25	16. 22	16. 20	60. 4	59. 58	4766	4773
Sa.	26	16. 18	16. 15	59. 50	59. 40	4783	4795
Sun.	27	16. 12	16. 9	59. 28	59. 15	4810	4826
M.	28	16. 5	16. 1	59. 1	58. 47	4843	4860
Tu.	29	15. 57	15. 53	58. 32	58. 17	4878	4897
W.	30	15. 49	15. 45	58. 2	57. 47	4916	4934
Th.	31	15. 41	15. 37	57. 32	57. 17	4953	4972

DISTANCES of MOON's Center from SUN, and from STARS EAST of her.

Stars Names.	Days	Noon.		III ^h .		VI ^a .		IX ^h .		Midnight.		XV ^h .		XVIII ^h .		XXI ^h .	
		D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.
The Sun.	1	58.	52.42	57.	15.48	55.	39.0	54.	2.19	52.	25.44	50.	49.16	49.	12.55	47.	36.43
	2	46.	0.38	44.	24.43	42.	48.55	41.	13.18	39.	37.50						
α Arietis.	7	-	-	-	-	-	-	-	-	86.	14.39	84.	41.47	83.	9.10	81.	36.49
	8	80.	4.44	78.	32.54	77.	1.20	75.	30.2	73.	58.59	72.	28.12	70.	57.42	69.	27.26
	9	67.	57.27	66.	27.43	64.	58.14	63.	29.2	62.	0.4	60.	31.22	59.	2.56	57.	34.45
	10	56.	6.50	54.	39.10	53.	11.45	51.	44.36	50.	17.43	48.	51.7	47.	24.47	45.	58.43
Aldebaran.	11	44.	32.55														
	11	74.	8.14	72.	39.37	71.	11.8	69.	42.44	68.	14.27	66.	46.15	65.	18.8	63.	50.5
	12	62.	22.6	60.	54.10	59.	26.17	57.	58.26	56.	30.38	55.	2.51	53.	35.5	52.	7.20
	13	50.	39.35	49.	11.50	47.	44.5	46.	16.19	44.	48.33	43.	20.45	41.	52.56	40.	25.6
	14	38.	57.13	37.	29.18	36.	1.23	34.	33.27	33.	5.31	31.	37.36	30.	9.41	28.	41.49
Pollux.	15	27.	13.58														
	15	70.	41.25	69.	10.39	67.	39.40	66.	8.26	64.	36.59	63.	5.17	61.	33.21	60.	1.8
	16	58.	28.41	56.	55.58	55.	22.57	53.	49.39	52.	16.4	50.	42.11	49.	7.58	47.	38.27
Regulus.	17	45.	58.36														
	17	82.	20.23	80.	45.24	79.	10.5	77.	34.24	75.	58.24	74.	22.3	72.	45.20	71.	8.17
	18	69.	30.52	67.	53.6	66.	14.59	64.	36.30	62.	57.40	61.	18.28	59.	38.54	57.	59.0
	19	56.	18.44	54.	38.7	52.	57.10	51.	15.52	49.	34.15	47.	52.17	46.	10.1	44.	27.26

Stars Names.	Days	Noon.		III ^h .		VI ^h .		IX ^h .		Midnight.		XV ^h .		XVIII ^h .		XXI ^h .	
		D. M. S.		D. M. S.		D. M. S.		D. M. S.		D. M. S.		D. M. S.		D. M. S.		D. M. S.	
Regulus.	20	42.44.33		41. 1.22		39.17.56		37.34.14		35.50.17		34. 6. 4		32.21.40		30.37. 7	
	21	28.52.24		27. 7.36		25.22.44		23.37.50		21.52.56							
	21	-		-		-		-		75.42.26		73.55.28		72. 8.16		70.20.53	
	22	68.33.18		66.45.33		64.57.38		63. 9.36		61.21.24		59.33. 5		57.44.42		55.56.12	
	23	54. 7.38		52.19. 0		50.30.20		48.41.39		46.52.56		45. 4.13		43.15.33		41.26.56	
Spica μ	24	39.38.22		37.49.52		36. 1.30		34.13.17		32.25.12		30.37.13		28.49.32		27. 2. 8	
	25	25.15. 1		23.28.19		21.42. 2		19.56.14		18.10.58							
	25	-		-		-		-		63.38.46		61.50.37		60. 2.37		58.14.46	
Antares.	26	56.27. 5		54.39.34		52.52.14		51. 5. 4		49.18. 6		47.31.19		45.44.45		43.58.23	
	27	42.12.13		40.26.16		38.40.33		36.55. 5		35 9.51		33.24.51		31.40. 7		29.55.39	
	28	28.11.26															
The Sun.	25	-		-		-		-		122.16. 6		120.35.52		118.55.45		117.15.47	
	26	115.35.57		113.56.16		112.16.44		110.37.22		108.58.10		107.19. 8		105.40.16		104. 1.36	
	27	102.23. 6		100.44.48		99. 6.42		97.28.47		95.51. 4		94.13.34		92.36.16		90.59.10	
	28	89.22.16		87.45.34		86. 9. 5		84.32.49		82.56.45		81.20.54		79.45.16		78. 9.51	
	29	76.34.38		74.59.38		73.24.50		71.50.15		70.15.53		68.41.44		67. 7.47		65.34. 3	
	30	64. 0.32		62.27.14		60.54. 8		59.21.15		57.48.35		56.16. 8		54.43.54		53.11.52	
	31	51.40. 4		50. 8.28		48.37. 5		47. 5.55		45.34.59		44. 4.16		42.33.47		41. 3.32	
F.1		39.33.31															

DISTANCES of MOON'S Center from SUN, and from STARS WEST of her.

Stars Names.	Days	Noon.		III ^h .		VI ^h .		IX ^h .		Midnight.		XV ^h .		XVIII ^h .		XXI ^h .	
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
Spica η	1	21. 29. 55		23. 12. 15		24. 54. 45		26. 37. 25		28. 20. 12		30. 3. 6		31. 46. 3		33. 29. 2	
	2	35. 12. 3		36. 55. 1		38. 37. 57		40. 20. 50		42. 3. 40		43. 46. 25		45. 29. 3		47. 11. 36	
	3	48. 54. 3		50. 36. 23		52. 18. 34		54. 0. 38		55. 42. 33		57. 24. 19		59. 5. 55		60. 47. 21	
	4	62. 28. 37															
The Sun.	9	39. 14. 25		40. 38. 9		42. 1. 41		43. 25. 3		44. 48. 14		46. 11. 15		47. 34. 5		48. 56. 46	
	10	50. 19. 16		51. 41. 38		53. 3. 50		54. 25. 52		55. 47. 47		57. 9. 33		58. 31. 13		59. 52. 45	
	11	61. 14. 10		62. 35. 29		63. 56. 42		65. 17. 51		66. 38. 54		67. 59. 53		69. 20. 49		70. 41. 42	
	12	72. 2. 32		73. 23. 20		74. 44. 8		76. 4. 54		77. 25. 40		78. 46. 26		80. 7. 13		81. 28. 1	
	13	82. 48. 51		84. 9. 44		85. 30. 40		86. 51. 41		88. 12. 45		89. 33. 54		90. 55. 10		92. 16. 31	
	14	93. 37. 59		94. 59. 34		96. 21. 18		97. 43. 11		99. 5. 12		100. 27. 23		101. 49. 45		103. 12. 18	
	15	104. 35. 2		105. 57. 58		107. 21. 6		108. 44. 28		110. 8. 3		111. 31. 52		112. 55. 57		114. 20. 16	
	16	115. 44. 50		117. 9. 40		118. 34. 46		120. 0. 10		121. 25. 50							
Fomalhaut.	13	-	-	-	-	-	-	-	-	53. 1. 56		54. 25. 35		55. 49. 31		57. 13. 44	
	14	58. 38. 12		60. 2. 57		61. 27. 58		62. 53. 15		64. 18. 48		65. 44. 37		67. 10. 41		68. 37. 2	
	15	70. 3. 39		71. 30. 32		72. 57. 42		74. 25. 9		75. 52. 52		77. 20. 51		78. 49. 8		80. 17. 42	
	16	81. 46. 33		83. 15. 42		84. 45. 8		86. 14. 53		87. 44. 55							
α Arietis.	16	-	-	-	-	-	-	-	-	25. 16. 56		26. 40. 47		28. 5. 47		29. 31. 54	
	17	30. 59. 4		32. 27. 15		33. 56. 17		35. 26. 12		36. 56. 56		38. 28. 21		40. 0. 25		41. 33. 11	

X.

XI. JANUARY 1799.

II

α Arietis.	17	30.59.4	32.27.15	33.56.17	35.26.12	36.56.56	38.28.21	40.0.25	41.33.11
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Stars Names.	Days	Noon.		III ^h .		VI ^h .		IX ^h .		Midnight.		XV ^h .		XVIII ^h .		XXI ^h .	
		D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.
α Arietis.	18	43.	6.36	44.	40.35	46.	15.9	47.	50.16	49.	25.58	51.	2.11	52.	38.55	54.	16.9
	19	55.	53.51														
Aldebaran.	19	25.	15.24	26.	52.55	28.	31.7	30.	9.58	31.	49.27	33.	29.33	35.	10.10	36.	51.20
	20	38.	33.2	40.	15.10	41.	57.44	43.	40.45	45.	24.11	47.	8.1	48.	52.12	50.	36.45
	21	52.	21.39	54.	6.53	55.	52.24	57.	38.13	59.	24.20	61.	10.43	62.	57.20	64.	44.12
	22	66.	31.17	68.	18.34	70.	6.3	71.	53.42	73.	41.31						
Pollux.	22	-	-	-	-	-	-	-	-	29.	27.35	31.	16.0	33.	4.33	34.	53.15
	23	36.	42.4	38.	31.0	40.	20.0	42.	9.5	43.	58.15	45.	47.27	47.	36.40	49.	25.55
	24	51.	15.10	53.	4.25	54.	53.37	56.	42.48	58.	31.55						
Regulus.	24	-	-	-	-	-	-	-	-	22.	32.47	24.	19.50	26.	7.2	27.	54.23
	25	29.	41.49	31.	29.20	33.	16.52	35.	4.24	36.	51.57	38.	39.24	40.	26.45	42.	14.2
	26	44.	1.14	45.	48.18	47.	35.15	49.	22.3	51.	8.44	52.	55.16	54.	41.38	56.	27.50
	27	58.	13.53	59.	59.44	61.	45.24	63.	30.53	65.	16.11	67.	1.18	68.	46.13	70.	30.56
	28	72.	15.28	73.	59.48	75.	43.55	77.	27.51	79.	11.33						
Spica η	28	-	-	-	-	-	-	-	-	25.	19.11	27.	1.21	28.	43.27	30.	25.30
	29	32.	7.28	33.	49.22	35.	31.9	37.	12.49	38.	54.22	40.	35.46	42.	17.0	43.	58.6
	30	45.	39.2	47.	19.48	49.	0.24	50.	40.50	52.	21.6	54.	1.11	55.	41.5	57.	20.49
	31	59.	0.22	60.	39.46	62.	18.59	63.	58.1	65.	36.53	67.	15.33	68.	54.3	70.	32.21
	F.1	72.	10.28														

CONFIGURATIONS of the SATELLITES of JUPITER
at VII o'Clock in the *Evening*.

1	.4.			○ .1	.2			3.○
2	.4			○ 2.		.3		
3		.4	.2	○ .1			3.	
4		.4	.1	○ .2		3.		
5			.4	○ 3.	.1	2.		
6		3.	2.	○ .1	.4			
7		.3	.2	○ 1.		.4		
8			.3	○ .1	.2		.4	
9			1.	○ 2.		.3		.4
10			2.	○ .1		.3		4.
11	2.○		1.	○		3.		4.
12			3.	○	1.	2.		4.
13			.1	○		4.		
14	4○	.3	.2	○ 1.				
15	1.○		4.	○ .3		.2		
16		4.		○ 1.	2.	.3		
17	4.		2.	○ .1		.3		
18	4.		1.	○ .2			3.	
19	.4			○	1.	2.		3●
20	2●	.4	3.	○ .1				
21		.3.4	.2	○ 1.				
22			.3.4.1	○ .2				
23	1●			○ 3○4	2.			
24			2.	○ .1		3○4		
25			1.2	○			3.	.4
26				○ 3.	.1	.2		.4
27	2●		3.	○ .1				4.
28		.3	.2	○	1.			4.
29			.3	○ .1	.2		4.	
30				○ 1.	.3	2○4		
31			2.	○ .1		.3		

I. FEBRUARY 1799. 13

Days of the Week.	Days of the Month.	Sundays, Holidays, Terms, &c.	Phases of the MOON.
			D. H. M.
			● New Moon ---- 4. 8. 14
			☾ First Quarter ---- 12. 12. 44
			○ Full Moon ----- 19. 17. 3
			☾ Last Quarter ---- 26. 8. 22
			Other Phenomena.
			D. H. M.
F.	1		1. 7. 29 ☾ ☉ ☿
Sa.	2	<i>Purif. of B. V. Mary.</i>	1. 11. 32 ☾ ☉ ☿
Sun.	3	<i>Quinquages. Sun. Blas.</i>	1. 16. 4 ☾ ☉ ☿
M.	4	<i>On mor. of Purif. 3 ret.</i>	11. 23. 23 $\frac{1}{2}$ I. of ☾, 4 $\frac{9}{16}$ N. of ☾'s C.
Tu.	5	<i>Agatha.</i>	12. 0. 15 $\frac{2}{3}$ E. of ☾, 4 $\frac{1}{4}$ N. of ☾'s C.
W.	6	<i>Asb-Wednesday.</i>	14. 18. 58 ☾ 125 ☿
Th.	7		17. 7. 4 ☾ 2 ad ☿ ☿
F.	8		18. 1. 56 ☉ enters ☿
Sa.	9	<i>In 8 days of Purif. 4 ret.</i>	19. 6. 30 ☾ ☉ ☿
Sun.	10	<i>1st Sunday in Lent.</i>	19. - - ☿ ☉ ☿, * 23' North.
M.	11		22. 2. 10 ☾ ☉ ☿
Tu.	12	<i>Hil. T. ends. Camb. T. [div. m.]</i>	22. 14. 33 I. of ☉ ☿, * 16' S. of ☾'s C.
W.	13		22. 15. 4 $\frac{1}{2}$ E. of ☉ ☿, * 12 $\frac{2}{3}$ S.
Th.	14	<i>Valentine.</i>	23. 21. 52 ☾ ☉ ☿
F.	15		24. 11. 28 ☾ ☉ ☿
Sa.	16		25. 9. 4 ☾ ☉ ☿
Sun.	17	<i>2d Sunday in Lent.</i>	25. - - ☿ ☉ ☿, * 37' South.
M.	18		25. 13. 45 ☾ ☉ ☿
Tu.	19		25. 16. 26 I. of ☉ ☿, * 7 $\frac{3}{4}$ S. of ☾'s C.
W.	20		25. 17. 37 $\frac{1}{2}$ E. of ☉ ☿, * 1 $\frac{1}{4}$ S.
Th.	21		26. - - ☿ ☉ ☿, * 35' South.
F.	22		27. 2. 41 ☾ ☉ ☿ Ophiuchi.
Sa.	23		28. 12. 59 ☾ ☉ ☿
Sun.	24	<i>3d Sun. in Lent. St. Mat-</i>	28. 17. 5 ☾ ☉ ☿
M.	25	<i>[thias. Pr. Adol. Fred. b.]</i>	28. 21. 39 ☾ ☉ ☿
Tu.	26		
W.	27		
Th.	28		

Days of the Week.	Days of the Month.	THE S U N ' s			Equation of Time.	Diff.
		Longitude.	R ^t . Ascen. <i>in Time.</i>	Declin. <i>South.</i>		
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	S.
F.	1	10. 12. 44. 0	21. 0. 48, 9	17. 0. 25	14. 2, 4	7, 2
Sa.	2	10. 13. 44. 51	21. 4. 52, 8	16. 43. 5	14. 9, 6	6, 4
Sun.	3	10. 14. 45. 41	21. 8. 55, 7	16. 25. 26	14. 16, 0	5, 6
M.	4	10. 15. 46. 30	21. 12. 57, 9	16. 7. 31	14. 21, 6	4, 8
Tu.	5	10. 16. 47. 18	21. 16. 59, 2	15. 49. 19	14. 26, 4	4, 0
W.	6	10. 17. 48. 5	21. 20. 59, 8	15. 30. 51	14. 30, 4	3, 1
Th.	7	10. 18. 48. 50	21. 24. 59, 5	15. 12. 7	14. 33, 5	2, 4
F.	8	10. 19. 49. 33	21. 28. 58, 4	14. 53. 8	14. 35, 9	1, 5
Sa.	9	10. 20. 50. 15	21. 32. 56, 5	14. 33. 53	14. 37, 4	0, 7
Sun.	10	10. 21. 50. 55	21. 36. 53, 8	14. 14. 25	14. 38, 1	0, 0
M.	11	10. 22. 51. 33	21. 40. 50, 3	13. 54. 42	14. 38, 1	0, 9
Tu.	12	10. 23. 52. 9	21. 44. 46, 0	13. 34. 46	14. 37, 2	1, 7
W.	13	10. 24. 52. 44	21. 48. 40, 8	13. 14. 37	14. 35, 5	2, 4
Th.	14	10. 25. 53. 16	21. 52. 35, 0	12. 54. 15	14. 33, 1	3, 2
F.	15	10. 26. 53. 47	21. 56. 28, 4	12. 33. 40	14. 29, 9	3, 9
Sa.	16	10. 27. 54. 16	22. 0. 21, 0	12. 12. 54	14. 26, 0	4, 6
Sun.	17	10. 28. 54. 42	22. 4. 12, 9	11. 51. 56	14. 21, 4	5, 4
M.	18	10. 29. 55. 8	22. 8. 4, 0	11. 30. 47	14. 16, 0	6, 1
Tu.	19	11. 0. 55. 32	22. 11. 54, 5	11. 9. 27	14. 9, 9	6, 7
W.	20	11. 1. 55. 54	22. 15. 44, 4	10. 47. 57	14. 3, 2	7, 3
Th.	21	11. 2. 56. 14	22. 19. 33, 5	10. 26. 17	13. 55, 9	8, 0
F.	22	11. 3. 56. 32	22. 23. 22, 0	10. 4. 27	13. 47, 9	8, 7
Sa.	23	11. 4. 56. 49	22. 27. 9, 9	9. 42. 28	13. 39, 2	9, 2
Sun.	24	11. 5. 57. 5	22. 30. 57, 3	9. 20. 20	13. 30, 0	9, 8
M.	25	11. 6. 57. 19	22. 34. 44, 0	8. 58. 4	13. 20, 2	10, 3
Tu.	26	11. 7. 57. 31	22. 38. 30, 2	8. 35. 40	13. 9, 9	10, 9
W.	27	11. 8. 57. 42	22. 42. 15, 9	8. 13. 8	12. 59, 0	11, 4
Th.	28	11. 9. 57. 52	22. 46. 1, 0	7. 50. 28	12. 47, 6	

III. FEBRUARY 1799. 15

Days	Time of ☉'s Semidiam. pass ^s Merid.	THE SUN'S			Place of the ☉'s Node
	M. S.	Semi- diameter	Hourly Motion.	Logar. Distance.	S. D. M.
1	1. 8, 1	16. 16, 6	2. 32, 2	9. 993833	1. 20. 54
7	1. 7, 4	16. 15, 6	2. 31, 8	9. 994288	1. 20. 35
13	1. 6, 7	16. 14, 4	2. 31, 5	9. 994783	1. 20. 16
19	1. 6, 1	16. 13, 1	2. 31, 0	9. 995339	1. 19. 57
25	1. 5, 6	16. 11, 7	2. 30, 5	9. 995969	1. 19. 38

ECLIPSES of the SATELLITES of JUPITER.

I. Satellite.		II. Satellite.		III. Satellite.	
<i>Emerfions.</i>					
Days.	H. M. S.	Days.	H. M. S.	Days.	H. M. S.
1	4. 57. 10	* 3	10. 21. 57 Im.	2	17. 23. 11 Im.
2	23. 25. 55	3	12. 45. 37 E.	2	19. 26. 9 E.
4	17. 54. 43	6	23. 40. 7 Im.	9	21. 24. 12 Im.
6	12. 23. 32	7	2. 3. 49 E.	9	23. 28. 6 E.
* 8	6. 52. 24	10	12. 58. 24 Im.	17	1. 25. 54 Im.
10	1. 21. 19	10	15. 22. 5 E.	17	3. 30. 45 E.
11	19. 50. 18	14	2. 16. 48 Im.	24	5. 28. 10 Im.
13	14. 19. 19	14	4. 40. 28 E.	* 24	7. 33. 58 E.
* 15	8. 48. 21	17	15. 35. 18 Im.	IV. Satellite. Conj.	
17	3. 17. 27	17	17. 58. 59 E.		
18	21. 46. 33	21	4. 53. 54 Im.		
20	16. 15. 46	* 21	7. 17. 36 E.		
* 22	10. 44. 53	24	18. 12. 33 Im.	* 8	9. 45 Inf.
24	5. 14. 11	24	20. 36. 19 E.	16	20. 9 Sup.
25	23. 43. 21	* 28	7. 31. 10 Im.	25	4. 32 Inf.
27	18. 12. 39	* 28	9. 54. 56 E.		

THE PLANETS							
Days	Heliocentric		Geocentric		Declin.	Passage	
	Long.	Lat.	Long.	Lat.		Merid.	
	S. D. M.	D. M.	S. D. M.	D. M.		D. M.	H. M.
♿ Gr. Elong. 4 ^d . MERCURY.							
1	6. 25. 24	2. 28 N	9. 17. 17	1. 7 N	21. 14 S	22. 14	
4	7. 4. 53	1. 21	9. 20. 12	0. 36	21. 22	22. 15	
7	7. 13. 53	0. 15 N	9. 23. 29	0. 7 N	21. 19	22. 17	
10	7. 22. 33	0. 48 S	9. 27. 5	0. 20 S	21. 6	22. 21	
13	8. 0. 57	1. 49	10. 0. 56	0. 45	20. 42	22. 26	
16	8. 9. 14	2. 47	10. 5. 0	1. 6	20. 7	22. 32	
19	8. 17. 28	3. 40	10. 9. 14	1. 25	19. 20	22. 38	
22	8. 25. 45	4. 30	10. 13. 39	1. 41	18. 21	22. 45	
25	9. 4. 11	5. 14	10. 18. 14	1. 54	17. 11	22. 53	
28	9. 12. 51	5. 52	10. 22. 57	2. 3	15. 49	23. 0	
♀ VENUS.							
1	11. 1. 18	3. 18 S	10. 20. 36	1. 25 S	15. 59 S	0. 33	
7	11. 10. 49	3. 23	10. 28. 7	1. 28	13. 31	0. 38	
13	11. 20. 20	3. 22	11. 5. 38	1. 28	10. 49	0. 43	
19	11. 29. 52	3. 16	11. 13. 7	1. 26	7. 58	0. 48	
25	0. 9. 25	3. 5	11. 20. 36	1. 21	4. 58	0. 53	
♂ MARS.							
1	2. 8. 45	0. 39 N	0. 29. 45	0. 42 N	12. 3 N	4. 49	
7	2. 11. 51	0. 45	1. 3. 30	0. 47	13. 26	4. 39	
13	2. 14. 56	0. 50	1. 7. 16	0. 51	14. 45	4. 30	
19	2. 17. 58	0. 55	1. 11. 4	0. 53	16. 0	4. 22	
25	2. 20. 59	1. 0	1. 14. 51	0. 57	17. 14	4. 14	
♃ JUPITER. ☐ 5 ^d . 21 ^h .							
1	1. 28. 33	0. 51 S	1. 17. 17	0. 53 S	16. 9 N	5. 59	
7	1. 29. 5	0. 51	1. 17. 46	0. 52	16. 19	5. 36	
13	1. 29. 37	0. 50	1. 18. 22	0. 50	16. 31	5. 15	
19	2. 0. 9	0. 50	1. 19. 3	0. 49	16. 44	4. 54	
25	2. 0. 41	0. 49	1. 19. 50	0. 47	16. 58	4. 35	
♄ SATURN.							
1	3. 23. 26	0. 4 N	3. 21. 8	0. 4 N	21. 53 N	10. 29	
7	3. 23. 39	0. 4	3. 20. 43	0. 5	21. 57	10. 3	
13	3. 23. 53	0. 5	3. 20. 19	0. 6	22. 1	9. 38	
19	3. 24. 6	0. 6	3. 20. 0	0. 6	22. 5	9. 13	
25	3. 24. 19	0. 6	3. 19. 43	0. 7	22. 8	8. 49	
♅ GEORGIAN.							
1	5. 20. 4	0. 46 N	5. 22. 2	0. 48 N	3. 54 N	14. 29	
11	5. 20. 12	0. 46	5. 21. 42	0. 48	4. 2	13. 48	
21	5. 20. 20	0. 46	5. 21. 19	0. 48	4. 11	13. 8	

V. FEBRUARY 1799. 17

Days of the Week.	Days of the Month.	THE MOON'S			
		Longitude.		Latitude.	
		Noon.	Midnight.	Noon.	Midnight.
		S. D. M. S.	S. D. M. S.	D. M. S.	D. M. S.
F.	1	9. 3. 17. 37	9. 9. 49. 40	3. 21. 10 S	3. 45. 23 S
Sa.	2	9. 16. 19. 4	9. 22. 45. 48	4. 6. 24	4. 24. 7
Sun.	3	9. 29. 9. 50	10. 5. 31. 5	4. 38. 21	4. 48. 58
M.	4	10. 11. 49. 31	10. 18. 5. 8	4. 55. 58	4. 59. 19
Tu.	5	10. 24. 17. 50	11. 0. 27. 43	4. 59. 4	4. 55. 18
W.	6	11. 6. 34. 47	11. 12. 39. 9	4. 48. 7	4. 37. 42
Th.	7	11. 18. 40. 59	11. 24. 40. 32	4. 24. 13	4. 7. 53
F.	8	0. 0. 38. 2	0. 6. 33. 53	3. 48. 53	3. 27. 27
Sa.	9	0. 12. 28. 30	0. 18. 22. 19	3. 3. 50	2. 38. 14
Sun.	10	0. 24. 15. 56	1. 0. 9. 54	2. 10. 56	1. 42. 10
M.	11	1. 6. 4. 51	1. 12. 1. 24	1. 12. 11	0. 41. 17 S
Tu.	12	1. 18. 0. 15	1. 24. 2. 8	0. 9. 41 S	0. 22. 17 N
W.	13	2. 0. 7. 43	2. 6. 17. 42	0. 54. 19 N	1. 26. 6
Th.	14	2. 12. 32. 42	2. 18. 53. 22	1. 57. 16	2. 27. 26
F.	15	2. 25. 20. 16	3. 1. 53. 53	2. 56. 12	2. 23. 7
Sa.	16	3. 8. 34. 31	3. 15. 22. 23	3. 47. 43	4. 9. 32
Sun.	17	3. 22. 17. 32	3. 29. 19. 50	4. 28. 4	4. 42. 53
M.	18	4. 6. 28. 50	4. 13. 44. 3	4. 53. 30	4. 59. 34
Tu.	19	4. 21. 4. 42	4. 28. 29. 48	5. 0. 48	4. 57. 0
W.	20	5. 5. 58. 15	5. 13. 28. 50	4. 48. 7	4. 34. 11
Th.	21	5. 21. 0. 20	5. 28. 31. 29	4. 15. 27	3. 52. 17
F.	22	6. 6. 1. 8	6. 13. 28. 14	3. 25. 8	2. 54. 35
Sa.	23	6. 20. 51. 54	6. 28. 11. 22	2. 21. 16	1. 45. 53
Sun.	24	7. 5. 26. 7	7. 12. 35. 49	1. 9. 6 N	0. 31. 37 N
M.	25	7. 19. 40. 15	7. 26. 39. 19	0. 5. 57 S	0. 42. 57 S
Tu.	26	8. 3. 33. 7	8. 10. 21. 47	1. 18. 53	1. 53. 13
W.	27	8. 17. 5. 34	8. 23. 44. 43	2. 25. 34	2. 55. 31
Th.	28	9. 0. 19. 34	9. 6. 50. 23	3. 22. 48	3. 47. 7

Days of the Week.	Days of the Month.	THE MOON'S					
		Age.	Passage Merid.	Right Ascension.		Declination.	
				Noon.	Midnight.	Noon.	Midnight.
				D. M.	D. M.	D. M.	D. M.
F.	1	28	22. 3	273. 41	281. 0	26. 47 S	26. 51 S
Sa.	2	29	22. 58	288. 15	295. 23	26. 33	25. 53
Sun.	3	30	23. 49	302. 22	309. 10	24. 53	23. 35
M.	4	1	0	315. 46	322. 10	22. 0	20. 10
Tu	5	2	0. 37	328. 21	334. 21	18. 8	15. 55
W.	6	3	1. 22	340. 9	345. 49	13. 34	11. 5
Th.	7	4	2. 4	351. 20	356. 46	8. 32	5. 55
F.	8	5	2. 44	2. 6	7. 24	3. 15 S	0. 34 S
Sa.	9	6	3. 23	12. 40	17. 57	2. 7 N	4. 46 N
Sun.	10	7	4. 3	23. 17	28. 40	7. 23	9. 57
M.	11	8	4. 44	34. 10	39. 48	12. 26	14. 48
Tu.	12	9	5. 28	45. 35	51. 33	17. 3	19. 10
W.	13	10	6. 15	57. 45	64. 9	21. 5	22. 48
Th.	14	11	7. 6	70. 48	77. 41	24. 16	25. 27
F.	15	12	8. 1	84. 48	92. 7	26. 19	26. 50
Sa.	16	13	8. 59	99. 36	107. 13	26. 58	26. 43
Sun.	17	14	9. 59	114. 53	122. 34	26. 2	24. 55
M.	18	15	10. 59	130. 12	137. 45	23. 25	21. 30
Tu.	19	16	11. 56	145. 10	152. 27	19. 14	16. 39
W.	20	17	12. 50	159. 35	166. 34	13. 47	10. 43
Th.	21	18	13. 43	173. 26	180. 12	7. 29	4. 8 N
F.	22	19	14. 34	186. 53	193. 31	0. 44 N	2. 39 S
Sa.	23	20	15. 25	200. 10	206. 49	5. 58 S	9. 12
Sun.	24	21	16. 18	213. 32	220. 19	12. 16	15. 8
M.	25	22	17. 12	227. 11	234. 10	17. 46	20. 8
Tu.	26	23	18. 7	241. 16	248. 27	22. 11	23. 54
W.	27	24	19. 4	255. 43	263. 2	25. 15	26. 14
Th.	28	25	20. 1	270. 22	277. 40	26. 51	27. 4

VII. FEBRUARY 1799. 19

Days of the Week.	Days of the Month.	THE MOON'S				Proportional Logarithm.	
		Semidiameter.		Hor. Parallax.			
		Noon.	Midnight.	Noon.	Midnight.	Noon.	Midn.
		M. S.	M. S.	M. S.	M. S.		
F.	1	15. 32	15. 28	57. 2	56. 47	4991	5010
Sa.	2	15. 24	15. 20	56. 32	56. 18	5029	5048
Sun.	3	15. 17	15. 13	56. 4	55. 50	5065	5084
M.	4	15. 9	15. 6	55. 36	55. 23	5102	5119
Tu.	5	15. 2	14. 59	55. 11	54. 59	5134	5150
W.	6	14. 56	14. 54	54. 49	54. 39	5163	5177
Th.	7	14. 51	14. 49	54. 31	54. 24	5187	5197
F.	8	14. 48	14. 47	54. 19	54. 15	5203	5209
Sa.	9	14. 47	14. 47	54. 14	54. 15	5210	5209
Sun.	10	14. 48	14. 49	54. 18	54. 23	5205	5198
M.	11	14. 51	14. 54	54. 31	54. 41	5187	5174
Tu.	12	14. 58	15. 2	54. 54	55. 9	5157	5137
W.	13	15. 7	15. 12	55. 27	55. 47	5114	5087
Th.	14	15. 18	15. 25	56. 10	56. 34	5058	5027
F.	15	15. 32	15. 39	57. 0	57. 27	4994	4966
Sa.	16	15. 47	15. 55	57. 55	58. 23	4924	4890
Sun.	17	16. 2	16. 9	58. 51	59. 17	4855	4823
M.	18	16. 16	16. 22	59. 42	60. 4	4793	4766
Tu.	19	16. 27	16. 32	60. 23	60. 39	4743	4724
W.	20	16. 35	16. 37	60. 51	60. 58	4710	4702
Th.	21	16. 38	16. 38	61. 2	61. 1	4697	4698
F.	22	16. 36	16. 34	60. 56	60. 47	4704	4715
Sa.	23	16. 30	16. 26	60. 34	60. 19	4730	4748
Sun.	24	16. 21	16. 16	60. 1	59. 41	4770	4794
M.	25	16. 10	16. 4	59. 20	58. 58	4820	4846
Tu.	26	15. 58	15. 52	58. 36	58. 14	4874	4901
W.	27	15. 46	15. 40	57. 52	57. 30	4928	4956
Th.	28	15. 34	15. 29	57. 9	56. 50	4983	5006

DISTANCES of MOON's Center from SUN, and from STARS EAST of her.

Stars Names.	Days	Noon.		III ^h .		VI ^h .		IX ^h .		Midnight.		XV ^h .		XVIII ^h .		XXI ^h .	
		D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.
α Arietis.	6	59.	53. 6	58.	24. 27	56.	56. 1	55.	27. 49	53.	59. 51	52.	32. 7	51.	4. 39	49.	37. 26
	7	48.	10. 28	46.	43. 45	45.	17. 19	43.	51. 12	42.	25. 22	40.	59. 52	39.	34. 43	38.	9. 54
	8	36.	45. 27														
Aldebaran.	8	66.	7. 3	64.	38. 47	63.	10. 37	61.	42. 32	60.	14. 33	58.	46. 39	57.	18. 49	55.	51. 4
	9	54.	23. 23	52.	55. 47	51.	28. 14	50.	0. 46	48.	33. 29	47.	5. 57	45.	38. 36	44.	11. 19
	10	42.	44. 4	41.	16. 52	39.	49. 43	38.	22. 37	36.	55. 34	35.	28. 32	34.	1. 35	32.	34. 43
	11	31.	7. 56	29.	41. 12	28.	14. 38	26.	48. 17	25.	22. 7	23.	56. 13	22.	30. 40	21.	5. 28
	12	19.	40. 38														
Pollux.	12	62.	40. 20	61.	9. 54	59.	39. 17	58.	8. 27	56.	37. 26	55.	6. 10	53.	34. 40	52.	2. 55
	13	50.	30. 55	48.	58. 39	47.	26. 6	45.	53. 16	44.	20. 10	42.	46. 46	41.	13. 4	39.	39. 4
	14	38.	4. 45														
Regulus.	14	74.	29. 22	72.	54. 51	71.	19. 58	69.	44. 44	68.	9. 9	66.	33. 12	64.	56. 52	63.	20. 10
	15	61.	43. 5	60.	5. 37	58.	27. 45	56.	49. 30	55.	10. 51	53.	31. 48	51.	52. 22	50.	12. 31
	16	48.	32. 17	46.	51. 38	45.	10. 36	43.	29. 10	41.	47. 21	40.	5. 8	38.	22. 34	36.	39. 38
	17	34.	56. 21	33.	12. 42	31.	28. 44	29.	44. 32	28.	0. 3	26.	15. 21	24.	30. 30	22.	45. 31
	18	21.	0. 22														
Spica ♏	18	74.	48. 24	73.	0. 53	71.	13. 1	69.	24. 47	67.	36. 12	65.	47. 18	63.	58. 5	62.	8. 36
	19	60.	18. 49	58.	28. 46	56.	38. 30	54.	48. 0	52.	57. 17	51.	6. 22	49.	15. 16	47.	24. 2

IX. FEBRUARY 1799. 21

Stars Names.	Days	Noon.	III ^h .	VI ^h .	IX ^h .	Midnight.	XV ^h .	XVIII ^h .	XXI ^h .
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
Spica η	20	45.32.39	43.41.9	41.49.35	39.58.0	38.6.21	36.14.39	34.23.1	32.31.28
	21	30.39.58	28.48.38	26.57.30	25.6.34	23.15.54			
Antares.	21	- - -	- - -	- - -	- - -	68.52.54	67.0.31	65.8.15	63.16.5
	22	61.24.3	59.32.9	57.40.24	55.48.50	53.57.26	52.6.14	50.15.15	48.24.30
	23	46.33.59	44.43.44	42.53.45	41.4.3	39.14.38	37.25.32	35.36.44	33.48.17
	24	32.0.10							
α Aquila.	24	83.45.36	82.16.11	80.47.11	79.18.37	77.50.31	76.22.54	74.55.52	73.29.24
	25	72.3.31	70.38.16	69.13.43	67.49.53	66.26.46	65.4.27	63.42.58	62.22.20
	26	61.2.36							
	24	120.30.33	118.50.18	117.10.20	115.30.41	113.51.20	112.12.17	110.33.34	108.55.9
	25	107.17.4	105.39.19	104.1.54	102.24.48	100.48.3	99.11.37	97.35.32	95.59.46
	26	94.24.20	92.49.14	91.14.27	89.40.0	88.5.53	86.32.5	84.58.36	83.25.26
The Sun.	27	81.52.35	80.20.2	78.47.47	77.15.50	75.44.12	74.12.51	72.41.47	71.11.0
	28	69.40.31	68.10.18	66.40.21	65.10.40	63.41.16	62.12.7	60.43.13	59.14.34
	M.1	57.46.11							

DISTANCES of MOON'S Center from SUN, and from STARS WEST of her.

Stars Names.	Days	Noon.		III ^h .		VI ^h .		IX ^h .		Midnight.		XV ^h .		XVIII ^h .		XXI ^h .	
		D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.
Antares.	1	26.	18. 17	27.	55. 51	29.	33. 18	31.	10. 37	32.	47. 48	34.	24. 51	36.	1. 45	37.	38. 31
	2	39.	15. 7	40.	51. 33	42.	27. 49	44.	3. 55	45.	39. 51	47.	15. 38	48.	51. 14	50.	26. 40
	3	52.	1. 56														
The Sun.	8	40.	57. 18	42.	18. 1	43.	38. 43	44.	59. 22	46.	19. 58	47.	40. 33	49.	1. 6	50.	21. 38
	9	51.	42. 9	53.	2. 37	54.	23. 6	55.	43. 36	57.	4. 6	58.	24. 36	59.	45. 9	61.	5. 43
	10	62.	26. 19	63.	46. 58	65.	7. 40	66.	28. 27	67.	49. 17	69.	10. 12	70.	31. 13	71.	52. 19
	11	73.	13. 32	74.	34. 51	75.	56. 18	77.	17. 53	78.	39. 36	80.	1. 28	81.	23. 30	82.	45. 43
	12	84.	8. 6	85.	30. 41	86.	53. 28	88.	16. 28	89.	39. 41	91.	3. 8	92.	26. 49	93.	50. 45
	13	95.	14. 57	96.	39. 24	98.	4. 9	99.	29. 10	100.	54. 29	102.	20. 6	103.	46. 1	105.	12. 16
	14	106.	38. 50	108.	5. 44	109.	32. 58	111.	0. 34	112.	28. 31	113.	56. 50	115.	25. 31	116.	54. 35
	15	118.	24. 2	119.	53. 52	121.	24. 5										
	12	-	-	-	-	-	-	-	-	21.	21. 40	22.	39. 55	23.	59. 40	25.	20. 49
	13	26.	43. 16	28.	6. 56	29.	31. 38	30.	57. 21	32.	24. 4	33.	51. 28	35.	19. 37	36.	48. 31
	14	38.	18. 7	39.	48. 20	41.	19. 9	42.	50. 35	44.	22. 38	45.	55. 15	47.	28. 26	49.	2. 9
	15	50.	36. 23														
	15	20.	10. 39	21.	42. 53	23.	16. 6	24.	50. 16	26.	25. 20	28.	1. 16	29.	37. 58	31.	15. 24
	16	32.	53. 36	34.	32. 23	36.	11. 45	37.	51. 45	39.	32. 21	41.	13. 29	42.	55. 9	44.	37. 21
	17	46.	20. 5	48.	3. 20	49.	47. 3	51.	31. 15	53.	15. 56	55.	1. 3	56.	46. 37	58.	32. 36

XI. FEBRUARY 1799. 23

Stars Names.	Days	Noon.	III ^h .	VI ^h .	IX ^h .	Midnight.	XV ^h .	XVIII ^h .	XXI ^h .
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
Aldebaran.	18 19	60. 19. 1 74. 43. 58	62. 5. 51	63. 53. 4	65. 40. 41	67. 28. 39	69. 16. 59	71. 5. 39	72. 54. 39
Pollux.	19 20 21	30. 30. 23 45. 18. 50 60. 17. 33	32. 20. 33 47. 10. 49	34. 11. 0 49. 2. 55	36. 1. 44 50. 55. 9	37. 52. 43 52. 47. 30	39. 43. 57 54. 39. 56	41. 35. 23 56. 32. 25	43. 27. 1 58. 24. 58
Regulus.	21 22 23 24	24. 14. 20 39. 3. 44 53. 50. 14 68. 23. 21	26. 5. 7 40. 54. 59 55. 40. 15 70. 11. 15	27. 56. 5 42. 46. 8 57. 30. 2 71. 58. 51	29. 47. 12 44. 37. 11 59. 19. 35 73. 46. 9	31. 38. 25 46. 28. 8 61. 8. 54 75. 33. 9	33. 29. 44 48. 18. 56 62. 57. 56	35. 21. 3 50. 9. 32 64. 46. 40	37. 12. 24 51. 59. 59 66. 35. 9
Spica μ	24 25 26 27 28 M.1	- 28. 41. 23 42. 29. 55 56. 0. 27 69. 12. 31 82. 7. 41	- 30. 25. 47 44. 12. 15 57. 40. 27 70. 50. 17	- 32. 9. 58 45. 54. 18 59. 20. 9 72. 27. 48	- 33. 53. 57 47. 36. 4 60. 59. 35 74. 5. 4	21. 42. 19 35. 37. 42 49. 17. 32 62. 38. 43 75. 42. 4	23. 27. 17 37. 21. 10 50. 58. 42 64. 17. 34 77. 18. 49	25. 12. 6 39. 4. 21 52. 39. 34 65. 56. 10 78. 55. 20	26. 56. 48 40. 47. 16 54. 20. 9 67. 34. 28 80. 31. 38

24 FEBRUARY 1799. XII.

CONFIGURATIONS of the SATELLITES of JUPITER
at Half an Hour past VI o'Clock in the *Evening*.

1				4.	.2	1.	○			3.
2				4.			○	3.	.1	.2
3		4.			3.	1.	○	2.		
4		.4		3.	.2		○		1.	
5		.4			.3	.1	○	.2		
6			.4				○	.3	1.	2.
7		1.○		.4	2.		○			.3
8		1●			.2	.4	○			3.
9							○	.1	3.	2 6 4
10				3.	1.		○	2.		.4
11				3.	2.		○	.1		.4
12		2.○			.3	.1	○			.4
13		3.○					○	1.	2.	4.
14					2.	.1	○		.3	4.
15		1●			.2		○			3 6 4
16							○	.1	4.	.2 3.
17						1 6 3 4	○	2.		
18				3 6 4	2.		○	.1		
19			4.	.3	.1	.2	○			
20		4.				.3	○	1.	2.	
21		.4			.1		○		.3	2●
22		.4		.2			○	1.		.3
23		1.○	.4				○	.2	3.	
24		3●		.4	1.		○	2.		
25		4 6		3.	2.		○	.1		
26			.3		1.	.2	○		.4	
27					.3		○	1.	.2	.4
28		2●			.1		○	.3		.4

Days of the Week.	Days of the Month.	Sundays, Holidays, Terms, &c.	Phases of the MOON.
			D. H. M.
			☉ New Moon ----- 6. 1. 34
			☾ First Quarter ---- 14. 6. 22
			☽ Full Moon ----- 21. 2. 53
			☾ Last Quarter ---- 27. 19. 34
			Other Phenomena.
			D. H. M.
			1. - - ♀ 2' $\frac{1}{2}$ North.
			11. 15. 20 ☾ 24
			11. 19. 40 ☾ 3
			14. 3. 20 ☾ 125 8
			16. 17. 10 ☾ 2 ad ↓ ☽
			18. - - ♀ 3' $\frac{1}{2}$ North.
			18. 17. 34 ☾ 7 8
			20. 2. 17 ☽ enters ♀
			21. - - ♀ Stationary.
			21. 12. 53 ☾ 7 12
			22. 1. 34 ☾ 8 12
			23. 7. 19 ☾ 9 12
			23. 20. 28 ☾ 10 12
			24. 17. 17 ☾ 11 12
			25. 1. 19 ☾ 12 12
			26. 9. 34 ☾ 13 Ophiuchi.
			27. 19. 7 ☾ 14 1
			27. 23. 8 ☾ 15 1
			28. 3. 39 ☾ 16 1
			30. 22. 51 ☾ 17 1
F.	1	David.	
Sa.	2	Chad.	
Sun.	3	4 th Sunday in Lent. Mid-	
M.	4	[lent-Sun.	
Tu.	5		
W.	6		
Th.	7	Perpetua.	
F.	8		
Sa.	9		
Sun.	10	5 th Sunday in Lent.	
M.	11		
Tu.	12	Gregory, M.	
W.	13		
Th.	14		
F.	15	Camb. Term ends.	
Sa.	16	Oxford Term ends.	
Sun.	17	Palm-Sunday.	
M.	18	Edw. K. of West. Saxon.	
Tu.	19		
W.	20		
Th.	21	Benedict.	
F.	22		
Sa.	23		
Sun.	24	Easter-Day.	
M.	25	Annun. of V. Mary. East.	
Tu.	26	Easter Tuesday. [Mon.	
W.	27		
Th.	28		
F.	29		
Sa.	30		
Sun.	31	1 st Su. aft. Easter, Low-	

Days of the Week.	Days of the Month.	THE SUN'S			Equation of Time.	Diff.
		Longitude.	R ^t . Ascen.	Declin.		
			<i>in Time.</i>	<i>South.</i>	<i>Add.</i>	
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	S.
F.	1	11. 10. 58. 0	22. 49. 45, 6	7. 27. 42	12. 35, 7	12, 4
Sa.	2	11. 11. 58. 6	22. 53. 29, 7	7. 4. 49	12. 23, 3	12, 8
Sun.	3	11. 12. 58. 11	22. 57. 13, 4	6. 41. 51	12. 10, 5	13, 3
M.	4	11. 13. 58. 14	23. 0. 56, 6	6. 18. 46	11. 57, 2	13, 7
Tu.	5	11. 14. 58. 15	23. 4. 39, 4	5. 55. 37	11. 43, 5	14, 2
W.	6	11. 15. 58. 15	23. 8. 21, 7	5. 32. 22	11. 29, 3	14, 6
Th.	7	11. 16. 58. 13	23. 12. 3, 7	5. 9. 3	11. 14, 7	15, 0
F.	8	11. 17. 58. 8	23. 15. 45, 2	4. 45. 41	10. 59, 7	15, 3
Sa.	9	11. 18. 58. 2	23. 19. 26, 4	4. 22. 14	10. 44, 4	15, 7
Sun.	10	11. 19. 57. 53	23. 23. 7, 2	3. 58. 44	10. 28, 7	16, 1
M.	11	11. 20. 57. 43	23. 26. 47, 6	3. 35. 11	10. 12, 6	16, 4
Tu.	12	11. 21. 57. 30	23. 30. 27, 8	3. 11. 36	9. 56, 2	16, 7
W.	13	11. 22. 57. 14	23. 34. 7, 6	2. 47. 59	9. 39, 5	17, 0
Th.	14	11. 23. 56. 57	23. 37. 47, 1	2. 24. 21	9. 22, 5	17, 3
F.	15	11. 24. 56. 36	23. 41. 26, 3	2. 0. 41	9. 5, 2	17, 5
Sa.	16	11. 25. 56. 14	23. 45. 5, 3	1. 37. 0	8. 47, 7	17, 7
Sun.	17	11. 26. 55. 49	23. 48. 44, 1	1. 13. 19	8. 30, 0	18, 0
M.	18	11. 27. 55. 22	23. 52. 22, 7	0. 49. 37	8. 12, 0	18, 1
Tu.	19	11. 28. 54. 52	23. 56. 1, 0	0. 25. 56	7. 53, 9	18, 3
W.	20	11. 29. 54. 21	23. 59. 39, 2	0. 2. 15	7. 35, 6	18, 4
Th.	21	0. 0. 53. 47	0. 3. 17, 3	0. 21. 25	7. 17, 2	18, 5
F.	22	0. 1. 53. 11	0. 6. 55, 3	0. 45. 4	6. 58, 7	18, 6
Sa.	23	0. 2. 52. 34	0. 10. 33, 3	1. 8. 42	6. 40, 1	18, 6
Sun.	24	0. 3. 51. 54	0. 14. 11, 1	1. 32. 17	6. 21, 5	18, 7
M.	25	0. 4. 51. 13	0. 17. 49, 0	1. 55. 51	6. 2, 8	18, 7
Tu.	26	0. 5. 50. 30	0. 21. 26, 8	2. 19. 22	5. 44, 1	18, 7
W.	27	0. 6. 49. 45	0. 25. 4, 6	2. 42. 50	5. 25, 4	18, 6
Th.	28	0. 7. 48. 58	0. 28. 42, 4	3. 6. 16	5. 6, 8	18, 6
F.	29	0. 8. 48. 10	0. 32. 20, 4	3. 29. 37	4. 48, 2	18, 5
Sa.	30	0. 9. 47. 20	0. 35. 58, 4	3. 52. 55	4. 29, 7	18, 4
Sun.	31	0. 10. 46. 28	0. 39. 36, 5	4. 16. 9	4. 11, 3	

Days	Time of ☉'s Semidiam. pass ^s Merid.	THE SUN'S			Place of the ☉'s Node.
	M. S.	Semi- diameter	Hourly Motion.	Logar Distance.	S. D. M.
1	1. 5. 2	16. 10. 8	2. 30. 2	9. 996419	1. 19. 25
7	1. 4. 9	16. 9. 3	2. 29. 7	9. 997113	1. 19. 6
13	1. 4. 6	16. 7. 6	2. 29. 2	9. 997810	1. 18. 47
19	1. 4. 4	16. 6. 0	2. 28. 9	9. 998527	1. 18. 28
25	1. 4. 3	16. 4. 4	2. 28. 4	9. 999281	1. 18. 9

ECLIPSES of the SATELLITES of JUPITER.

I. Satellite.		II. Satellite.		III. Satellite.	
<i>Emerfions.</i>					
Days.	H. M. S.	Days.	H. M. S.	Days.	H. M. S.
1	12. 41. 56	3	20. 50. 3 Im.	* 3	9. 30. 55 Im.
* 3	7. 11. 17	3	23. 13. 49 E.	3	11. 37. 43 E.
5	1. 40. 40	* 7	10. 8. 54 Im.	10	13. 33. 59 Im.
6	20. 10. 3	7	12. 32. 44 E.	10	15. 41. 47 E.
8	14. 39. 27	10	23. 27. 50 Im.	17	17. 37. 15 Im.
* 10	9. 8. 51	11	1. 51. 40 E.	17	19. 46. 5 E.
12	3. 38. 16	<i>Emerfions.</i>		24	21. 40. 41 Im.
13	22. 7. 44	14	15. 10. 41	24	23. 50. 33 E.
15	16. 37. 10	18	4. 29. 42		
17	11. 6. 35	21	17. 48. 45		
19	5. 36. 6	* 25	7. 7. 42		
21	0. 5. 32	28	20. 26. 38		
22	18. 35. 4				
24	13. 4. 31				
* 26	7. 34. 3				
28	2. 3. 28				
29	20. 32. 59				
31	15. 2. 25				
IV. Satellite. Conj.					
				5	15. 23 Sup.
				14	0. 4 $\frac{1}{2}$ Inf.
				22	11. 17 Sup.
				30	20. 11 Inf.

THE PLANETS							
Days	Heliocentric		Geocentric		Declin.	Passage	
	Long.	Lat.	Long.	Lat.		Merid.	
	S. D. M.	D. M.	S. D. M.	D. M.		D. M.	H. M.
♿ MERCURY. Sup. ♂ 21 ^d . 1 ^h ₄ .							
1	9.15.48	6. 4 S	10.24.35	2. 5 S	15.20 S	23. 3	
4	9.24.57	6.32	10.29.30	2.19	13.42	23.11	
7	10. 4.36	6.52	11. 4.39	2.11	11.51	23.20	
10	10.14.53	7. 0	11. 9.56	2. 8	9.50	23.29	
13	10.25.57	6.54	11.15.23	2. 1	7.37	23.38	
16	11. 7.58	6.30	11.21. 1	1.49	5.14	23.48	
19	11.21. 6	5.44	11.26.51	1.31	2.40 S	23.58	
22	0. 5.29	4.33	0. 2.49	1.10	0. 2 N	0. 5	
25	0.21.13	2.56	0. 8.53	0.44	2.51	0.16	
28	1. 8.17	0.56 S	0.15. 2	0.14 S	5.43	0.27	
31	1.26.27	1.17 N	0.21. 6	0.19 N	8.32	0.38	
♀ VENUS.							
1	0.15.47	2.54 S	11.25.35	1.17 S	2.56 S	0.56	
7	0.25.22	2.35	0. 3. 2	1. 9	0. 9 N	1. 1	
13	1. 4.57	2.11	0.10.28	0.59	3.15	1. 6	
19	1.14.33	1.43	0.17.54	0.47	6.18	1.11	
25	1.24.10	1.12	0.25.18	0.33	9.17	1.17	
♂ MARS.							
1	2.22.59	1. 3 N	1.17.23	0.59 N	17.59 N	4. 8	
7	2.25.57	1. 8	1.21.10	1. 2	19. 4	4. 2	
13	2.28.53	1.12	1.25. 0	1. 4	20. 5	3.55	
19	3. 1.48	1.17	1.28.48	1. 6	21. 0	3.49	
25	3. 4.41	1.21	2. 2.36	1. 8	21.40	3.43	
♃ JUPITER.							
1	2. 1. 3	0.49 S	1.20.24	0.46 S	17. 7 N	4.22	
7	2. 1.35	0.48	1.21.20	0.45	17.23	4. 4	
13	2. 2. 6	0.48	1.22.19	0.44	17.40	3.46	
19	2. 2.38	0.47	1.23.22	0.43	17.57	3.28	
25	2. 3.10	0.46	1.24.29	0.42	18.14	3.11	
♄ SATURN.							
1	3.24.28	0. 7 N	3.19.33	0. 7 N	22. 9 N	8.34	
7	3.24.42	0. 7	3.19.22	0. 8	22.11	8.11	
13	3.24.55	0. 8	3.19.16	0. 8	22.13	7.48	
19	3.25. 8	0. 8	3.19.13	0. 9	22.14	7.26	
25	3.25.22	0. 9	3.19.14	0. 9	22.14	7. 4	
♅ GEORGIAN. ♂ 10 ^d . 14 ^h ₂ .							
1	5.20.20	0.46 N	5.20.59	0.48 N	4.19 N	12.36	
11	5.20.34	0.46	5.20.33	0.48	4.30	11.58	
21	5.20.42	0.46	5.20. 6	0.48	4.40	11.20	

Days of the Week.	Days of the Month.	THE MOON'S			
		Longitude.		Latitude.	
		Noon.	Midnight.	Noon.	Midnight.
		S. D. M. S.	S. D. M. S.	D. M. S.	D. M. S.
F.	1	9. 13. 17. 29	9. 19. 41. 10	4. 8. 18 S	4. 26. 7 S
Sa.	2	9. 26. 1. 41	10. 2. 19. 18	4. 40. 29	4. 51. 20
Sun.	3	10. 8. 34. 12	10. 14. 46. 33	4. 58. 35	5. 2. 14
M.	4	10. 20. 56. 31	10. 27. 4. 13	5. 2. 20	4. 58. 56
Tu.	5	11. 3. 9. 48	11. 9. 13. 20	4. 52. 7	4. 42. 1
W.	6	11. 15. 14. 57	11. 21. 14. 48	4. 28. 48	4. 12. 39
Th.	7	11. 27. 12. 58	0. 3. 9. 42	3. 53. 45	3. 32. 21
F.	8	0. 9. 5. 10	0. 14. 59. 39	3. 8. 41	2. 43. 0
Sa.	9	0. 20. 53. 26	0. 26. 46. 52	2. 15. 34	1. 46. 39
Sun.	10	1. 2. 40. 23	1. 8. 34. 24	1. 16. 32	0. 45. 32 S
M.	11	1. 14. 29. 24	1. 20. 25. 56	0. 13. 54 S	0. 18. 4 N
Tu.	12	1. 26. 24. 34	2. 2. 25. 55	0. 50. 3 N	1. 21. 43
W.	13	2. 8. 30. 36	2. 14. 39. 16	1. 52. 47	2. 22. 53
Th.	14	2. 20. 52. 34	2. 27. 11. 6	2. 51. 41	3. 18. 48
F.	15	3. 3. 35. 29	3. 10. 6. 15	3. 43. 51	4. 6. 25
Sa.	16	3. 16. 43. 51	3. 23. 28. 40	4. 26. 6	4. 42. 28
Sun.	17	4. 0. 20. 54	4. 7. 20. 36	4. 55. 6	5. 3. 35
M.	18	4. 14. 27. 40	4. 21. 41. 44	5. 7. 33	5. 6. 44
Tu.	19	4. 29. 2. 15	5. 6. 28. 29	5. 0. 55	4. 49. 58
W.	20	5. 13. 59. 25	5. 21. 33. 56	4. 33. 54	4. 12. 55
Th.	21	5. 29. 10. 48	6. 6. 48. 35	3. 47. 19	3. 17. 34
F.	22	6. 14. 26. 1	6. 22. 1. 46	2. 44. 17	2. 8. 10
Sa.	23	6. 29. 34. 38	7. 7. 3. 37	1. 29. 57	0. 50. 28 N
Sun.	24	7. 14. 27. 47	7. 21. 46. 28	0. 10. 29 N	0. 29. 12 S
M.	25	7. 28. 59. 10	8. 6. 5. 35	1. 7. 56 S	1. 45. 3
Tu.	26	8. 13. 5. 36	8. 19. 59. 12	2. 20. 1	2. 52. 25
W.	27	8. 26. 46. 32	9. 3. 27. 50	3. 21. 53	3. 48. 7
Th.	28	9. 10. 3. 26	9. 16. 33. 39	4. 10. 56	4. 30. 10
F.	29	9. 22. 58. 56	9. 29. 19. 41	4. 45. 45	4. 57. 37
Sa.	30	10. 5. 36. 19	10. 11. 49. 17	5. 5. 47	5. 10. 14
Sun.	31	10. 17. 58. 58	10. 24. 5. 44	5. 11. 4	5. 8. 19

THE MOON'S							
Days of the Week.	Days of the Month.	Age.	Passage	Right Ascension.		Declination.	
			Merid.	Noon.	Midnight.	Noon.	Midnight.
		D.	H. M.	D. M.	D. M.	D. M.	D. M.
F.	1	26	20. 56	284. 54	292. 1	26. 55 S	26. 24 S
Sa.	2	27	21. 48	299. 0	305. 48	25. 33	24. 23
Sun.	3	28	22. 36	312. 25	318. 50	22. 56	21. 14
M.	4	29	23. 22	325. 3	331. 4	19. 18	17. 11
Tu.	5	30	0	336. 55	342. 37	14. 53	12. 28
W.	6	1	0. 4	348. 11	353. 38	9. 57	7. 21
Th.	7	2	0. 45	359. 0	4. 18	4. 41 S	1. 59 S
F.	8	3	1. 25	9. 35	14. 51	0. 43 N	3. 24 N
Sa.	9	4	2. 4	20. 9	25. 30	6. 4	8. 41
Sun.	10	5	2. 45	30. 55	36. 26	11. 13	13. 39
M.	11	6	3. 28	42. 5	47. 54	15. 59	18. 10
Tu.	12	7	4. 13	53. 53	60. 4	20. 11	22. 0
W.	13	8	5. 2	66. 27	73. 3	23. 36	24. 57
Th.	14	9	5. 55	79. 51	86. 51	26. 0	26. 45
F.	15	10	6. 50	94. 2	101. 21	27. 9	27. 11
Sa.	16	11	7. 48	108. 46	116. 14	26. 49	26. 3
Sun.	17	12	8. 47	123. 42	131. 9	24. 54	23. 21
M.	18	13	9. 44	138. 32	145. 49	21. 25	19. 7
Tu.	19	14	10. 39	153. 0	160. 4	16. 31	13. 38
W.	20	15	11. 33	167. 2	173. 56	10. 31	7. 13
Th.	21	16	12. 26	180. 46	187. 33	3. 48 N	0. 19 N
F.	22	17	13. 19	194. 21	201. 10	3. 10 S	6. 36 S
Sa.	23	18	14. 13	208. 3	215. 0	9. 56	13. 5
Sun.	24	19	15. 8	222. 3	229. 13	16. 2	18. 42
M.	25	20	16. 5	236. 30	243. 53	21. 4	23. 4
Tu.	26	21	17. 4	251. 21	258. 52	24. 43	25. 57
W.	27	22	18. 2	266. 24	273. 53	26. 47	27. 13
Th.	28	23	18. 59	281. 18	288. 35	27. 15	26. 54
F.	29	24	19. 53	295. 42	302. 38	26. 12	25. 10
Sa.	30	25	20. 42	309. 20	315. 50	23. 50	22. 13
Sun.	31	26	21. 29	322. 7	328. 12	20. 23	18. 21

Days of the Week.	Days of the Month.	THE MOON'S				Proportional Logarithm.	
		Semidiameter.		Hor. Parallax.			
		Noon.	Midnight.	Noon.	Midnight.	Noon.	Midn.
		M. S.	M. S.	M. S.	M. S.		
F.	1	15. 24	15. 19	56. 31	56. 13	5031	5054
Sa.	2	15. 15	15. 11	55. 58	55. 43	5073	5093
Sun.	3	15. 7	15. 3	55. 28	55. 14	5112	5130
M.	4	15. 0	14. 57	55. 3	54. 52	5145	5159
Tu.	5	14. 54	14. 52	54. 42	54. 33	5173	5185
W.	6	14. 50	14. 48	54. 26	54. 19	5194	5203
Th.	7	14. 47	14. 46	54. 15	54. 11	5209	5214
F.	8	14. 45	14. 45	54. 8	54. 7	5218	5219
Sa.	9	14. 45	14. 45	54. 7	54. 9	5219	5217
Sun.	10	14. 47	14. 48	54. 14	54. 19	5210	5203
M.	11	14. 50	14. 53	54. 27	54. 37	5193	5179
Tu.	12	14. 56	15. 0	54. 50	55. 4	5162	5144
W.	13	15. 5	15. 10	55. 20	55. 39	5123	5098
Th.	14	15. 16	15. 22	56. 1	56. 25	5069	5038
F.	15	15. 29	15. 37	56. 50	57. 17	5006	4972
Sa.	16	15. 44	15. 52	57. 45	58. 14	4937	4901
Sun.	17	16. 0	16. 8	58. 43	59. 12	4865	4830
M.	18	16. 16	16. 23	59. 40	60. 6	4795	4764
Tu.	19	16. 29	16. 35	60. 30	60. 51	4735	4710
W.	20	16. 40	16. 43	61. 8	61. 21	4690	4675
Th.	21	16. 45	16. 46	61. 29	61. 32	4665	4661
F.	22	16. 45	16. 44	61. 30	61. 23	4664	4672
Sa.	23	16. 41	16. 37	61. 12	60. 57	4685	4703
Sun.	24	16. 31	16. 25	60. 38	60. 15	4725	4753
M.	25	16. 18	16. 11	59. 50	59. 25	4783	4813
Tu.	26	16. 4	15. 56	58. 58	58. 30	4846	4881
W.	27	15. 49	15. 42	58. 3	57. 36	4915	4949
Th.	28	15. 35	15. 28	57. 11	56. 47	4980	5010
F.	29	15. 22	15. 16	56. 24	56. 2	5040	5068
Sa.	30	15. 11	15. 6	55. 43	55. 25	5093	5116
Sun.	31	15. 2	14. 58	55. 10	54. 56	5136	5154

DISTANCES of MOON's Center from SUN, and from STARS EAST of her.

Stars Names.	Days	Noon.		III ^h .		VI ^h .		IX ^h .		Midnight.		XV ^h .		XVIII ^h .		XXI ^h .	
		D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.
The Sun.	1	57.	46. 11	56.	18. 2	54.	50. 7	53.	22. 26	51.	55. 0	50.	27. 47	49.	0. 47	47.	34. 1
	2	46.	7. 28	44.	41. 8	43.	15. 1	41.	49. 7	40.	23. 25						
Aldebaran.	7	69.	30. 36	68.	2. 9	66.	33. 47	65.	5. 30	63.	37. 18	62.	9. 11	60.	41. 9	59.	13. 12
	8	57.	45. 19	56.	17. 31	54.	49. 47	53.	22. 8	51.	54. 33	50.	27. 2	48.	59. 36	47.	32. 14
	9	46.	4. 57	44.	37. 44	43.	10. 35	41.	43. 32	40.	16. 33	38.	49. 38	37.	22. 50	35.	56. 9
	10	34.	29. 34	33.	3. 4	31.	36. 45	30.	10. 37	28.	44. 39	27.	18. 56	25.	53. 28	24.	28. 17
Pollux.	11	23.	3. 25														
	11	66.	9. 53	64.	40. 39	63.	11. 17	61.	41. 49	60.	12. 14	58.	42. 31	57.	12. 40	55.	42. 40
	12	54.	12. 31	52.	42. 13	51.	11. 44	49.	41. 5	48.	10. 15	46.	39. 13	45.	7. 58	43.	36. 31
Regulus.	13	42.	4. 52														
	13	78.	31. 23	76.	59. 40	75.	27. 42	73.	55. 29	72.	23. 1	70.	50. 16	69.	17. 15	67.	43. 57
	14	66.	10. 22	64.	36. 29	63.	2. 18	61.	27. 47	59.	52. 58	58.	17. 48	56.	42. 18	55.	6. 27
	15	53.	30. 16	51.	53. 43	50.	16. 48	48.	39. 32	47.	1. 54	45.	23. 53	43.	45. 30	42.	6. 44
	16	40.	27. 37	38.	48. 5	37.	8. 12	35.	27. 58	33.	47. 22	32.	6. 22	30.	25. 5	28.	43. 30
Spica μ	17	27.	1. 38	25.	19. 33	23.	37. 13	21.	54. 44	20.	12. 4						
	17	-	-	-	-	-	-	-	-	73.	57. 43	72.	12. 22	70.	26. 34	68.	40. 20
	18	66.	53. 39	65.	6. 33	63.	19. 3	61.	31. 8	59.	42. 49	57.	54. 6	56.	5. 1	54.	15. 34
	19	52.	25. 45	50.	35. 34	48.	45. 6	46.	54. 18	45.	3. 13	43.	11. 50	41.	20. 14	39.	28. 24

Stars Names.	Days	Noon.	III ^h .	VI ^h .	IX ^h .	Midnight.	XV ^h .	XVIII ^h .	XXI ^h .
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
Spica η	20	37.36.22	35.44.7	33.51.46	31.59.19	30.6.47	28.14.14	26.21.42	24.29.13
	21	22.36.50							
Antares.	21	68.13.33	66.19.18	64.25.1	62.30.42	60.36.19	58.41.56	56.47.36	54.53.19
	22	52.59.4	51.4.55	49.10.52	47.16.57	45.23.11	43.29.36	41.36.13	39.43.4
	23	37.50.7	35.57.26	34.5.2	32.12.55	30.21.7			
α Aquilæ.	23	- - -	- - -	- - -	- - -	82.29.59	80.57.53	79.26.13	77.55.1
	24	76.24.21	74.54.15	73.24.46	71.55.58	70.27.50	69.0.27	67.33.53	66.8.11
	25	64.43.19	63.19.25	61.56.30	60.34.37	59.13.49			
Fomalhaut.	25	- - -	- - -	- - -	- - -	84.38.24	82.56.39	81.15.21	79.34.30
	26	77.54.6	76.14.10	74.34.42	72.55.42	71.17.10	69.39.8	68.1.36	66.24.34
	27	64.48.2	63.12.0	61.36.30	60.1.32	58.27.6	56.53.13	55.19.53	53.47.8
	28	52.14.57							
The Sun.	25	- - -	- - -	- - -	120.53.5	119.14.22	117.36.5	115.58.13	114.20.45
	26	112.43.42	111.7.4	109.30.51	107.55.3	106.19.39	104.44.41	103.10.6	101.35.56
	27	100.2.10	98.28.48	96.55.49	95.23.13	93.51.1	92.19.10	90.47.42	89.16.37
	28	87.45.54	86.15.32	84.45.30	83.15.48	81.46.27	80.17.26	78.48.43	77.20.19
	29	75.52.14	74.24.27	72.56.56	71.29.43	70.2.46	68.36.6	67.9.41	65.43.31
	30	64.17.36	62.51.55	61.26.27	60.1.13	58.36.12	57.11.24	55.46.47	54.22.23
	31	52.58.10	51.34.8	50.10.17	48.46.36	47.23.5	45.59.44	44.36.31	43.13.27
	A.1	41.50.32							

DISTANCES of MOON'S Center from SUN, and from STARS WEST of her.

Stars Names.	Days	Noon.		III ^h .		VI ^h .		IX ^h .		Midnight.		XV ^h .		XVIII ^h .		XXI ^h .	
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
Antares.	1	36. 13. 47	37. 49. 33	39. 25. 6	41. 0. 27	42. 35. 35	44. 10. 31	45. 45. 16	47. 19. 49	48. 6. 53	49. 27. 56	50. 49. 6	51. 42. 29	52. 10. 21	53. 36. 13	54. 54. 11	56. 16. 41
	2	48. 54. 11	50. 28. 22	52. 2. 23	53. 36. 13	55. 9. 53	56. 43. 22	58. 16. 41	59. 49. 50	60. 20. 21	61. 42. 29	62. 18. 18	63. 4. 47	64. 20. 21	65. 49. 53	66. 16. 41	67. 33. 10
	3	61. 22. 49	62. 55. 38	64. 28. 18	66. 0. 49	67. 33. 10	69. 5. 23	70. 37. 28	72. 9. 23	69. 5. 23	71. 22. 18	72. 45. 56	74. 9. 47	75. 33. 10	76. 58. 54	77. 33. 10	78. 15. 45
	4	73. 41. 11	75. 12. 50	76. 44. 22	78. 15. 45	79. 47. 0	81. 12. 39	82. 38. 0	84. 3. 39	82. 38. 0	84. 3. 39	85. 29. 36	87. 1. 9	88. 22. 24	89. 49. 17	90. 21. 18	91. 52. 26
The Sun.	9	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	37. 21. 6	38. 41. 35	40. 2. 8	41. 22. 45	42. 35. 35	43. 46. 44	44. 57. 53	46. 8. 2
	10	42. 43. 26	44. 4. 11	45. 25. 0	46. 45. 54	48. 6. 53	49. 27. 56	50. 49. 6	51. 42. 29	48. 6. 53	49. 27. 56	50. 49. 6	51. 42. 29	52. 10. 21	53. 36. 13	54. 54. 11	56. 16. 41
	11	53. 31. 42	54. 53. 10	56. 14. 46	57. 36. 30	58. 58. 21	60. 20. 21	61. 42. 29	63. 4. 47	58. 58. 21	60. 20. 21	61. 42. 29	63. 4. 47	64. 20. 21	65. 49. 53	66. 16. 41	67. 33. 10
	12	64. 27. 15	65. 49. 53	67. 12. 42	68. 35. 42	69. 58. 54	71. 22. 18	72. 45. 56	74. 9. 47	69. 58. 54	71. 22. 18	72. 45. 56	74. 9. 47	75. 33. 10	76. 58. 54	77. 33. 10	78. 15. 45
α Arietis.	13	75. 33. 51	76. 58. 10	78. 22. 44	79. 47. 34	81. 12. 39	82. 38. 0	84. 3. 39	85. 29. 36	81. 12. 39	82. 38. 0	84. 3. 39	85. 29. 36	87. 1. 9	88. 22. 24	89. 49. 17	90. 21. 18
	14	86. 55. 51	88. 22. 24	89. 49. 17	91. 16. 30	92. 44. 3	94. 11. 57	95. 40. 12	97. 8. 49	92. 44. 3	94. 11. 57	95. 40. 12	97. 8. 49	98. 37. 47	99. 50. 36	100. 21. 18	101. 52. 26
	15	98. 37. 47	100. 7. 8	101. 36. 52	103. 7. 0	104. 37. 31	106. 8. 27	107. 39. 47	109. 11. 33	104. 37. 31	106. 8. 27	107. 39. 47	109. 11. 33	110. 43. 43	111. 54. 52	112. 6. 53	113. 17. 6
	16	110. 43. 43	112. 16. 19	113. 49. 22	115. 22. 50	116. 56. 44	118. 31. 4	120. 5. 51	121. 16. 30	116. 56. 44	118. 31. 4	120. 5. 51	121. 16. 30	122. 27. 15	123. 38. 24	124. 49. 33	125. 60. 42
Aldebaran.	14	46. 14. 39	47. 45. 38	49. 17. 5	50. 48. 59	52. 21. 21	53. 54. 10	55. 27. 26	57. 1. 9	52. 21. 21	53. 54. 10	55. 27. 26	57. 1. 9	58. 35. 19	59. 46. 28	60. 57. 37	61. 68. 46
	15	58. 35. 19	60. 9. 56	61. 45. 0	63. 20. 32	64. 56. 31	66. 32. 57	68. 9. 51	69. 47. 11	64. 56. 31	66. 32. 57	68. 9. 51	69. 47. 11	70. 37. 28	71. 48. 37	72. 59. 46	73. 70. 55
	16	71. 25. 0	72. 36. 14	73. 47. 23	74. 58. 32	76. 9. 41	77. 20. 50	78. 31. 59	79. 43. 6	76. 9. 41	77. 20. 50	78. 31. 59	79. 43. 6	80. 54. 17	81. 65. 26	82. 76. 35	83. 87. 44
Aldebaran.	16	40. 55. 16	42. 33. 48	44. 12. 51	45. 52. 26	47. 32. 32	49. 13. 9	50. 54. 17	52. 35. 55	47. 32. 32	49. 13. 9	50. 54. 17	52. 35. 55	53. 16. 26	54. 27. 35	55. 38. 44	56. 49. 53
	17	54. 18. 4	56. 0. 43	57. 43. 52	59. 27. 30	61. 11. 37	62. 56. 14	64. 41. 18	66. 26. 51	61. 11. 37	62. 56. 14	64. 41. 18	66. 26. 51	67. 37. 60	68. 48. 69	69. 59. 78	71. 10. 87

Stars Names.	Days	Noon.		III ^h .		VI ^h .		IX ^h .		Midnight.		XV ^h .		XVIII ^h .		XXI ^h .	
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
Aldebaran.	18	68. 12. 52		69. 59. 21		71. 46. 15		73. 33. 36		75. 21. 23		77. 9. 35		78. 58. 11		80. 47. 12	
	19	82. 36. 36															
Pollux.	19	38. 24. 43		40. 15. 12		42. 6. 3		43. 57. 15		45. 48. 47		47. 40. 39		49. 32. 48		51. 25. 14	
	20	53. 17. 58		55. 10. 57		57. 4. 9		58. 57. 35		60. 51. 13		62. 45. 2		64. 38. 59		66. 33. 6	
Regulus.	21	68. 27. 20															
	21	32. 17. 1		34. 10. 10		36. 3. 30		37. 56. 58		39. 50. 33		41. 44. 14		43. 37. 56		45. 31. 40	
	22	47. 25. 26		49. 19. 8		51. 12. 46		53. 6. 18		54. 59. 46		56. 53. 5		58. 46. 13		60. 39. 12	
	23	62. 32. 0		64. 24. 35		66. 16. 55		68. 9. 1		70. 0. 52		71. 52. 26		73. 43. 41		75. 34. 37	
	24	77. 25. 14															
	24	23. 31. 13		25. 20. 9		27. 8. 53		28. 57. 25		30. 45. 45		32. 33. 50		34. 21. 38		36. 9. 8	
Spica ♀	25	37. 56. 21		39. 43. 11		41. 29. 39		43. 15. 46		45. 1. 32		46. 46. 54		48. 31. 52		50. 16. 27	
	26	52. 0. 39		53. 44. 26		55. 27. 49		57. 10. 49		58. 53. 24		60. 35. 35		62. 17. 22		63. 58. 46	
	27	65. 39. 46		67. 20. 22		69. 0. 35		70. 40. 25		72. 19. 52							
	27	- - -		- - -		- - -		- - -		26. 26. 36		28. 5. 28		29. 44. 0		31. 22. 12	
Antares.	28	33. 0. 4		34. 37. 37		36. 14. 51		37. 51. 46		39. 28. 23		41. 4. 41		42. 40. 40		44. 16. 23	
	29	45. 51. 47		47. 26. 54		49. 1. 45		50. 36. 19		52. 10. 37		53. 44. 39		55. 18. 26		56. 51. 58	
	30	58. 25. 16		59. 58. 20		61. 31. 11		63. 3. 48		64. 36. 13		66. 8. 26		67. 40. 27		69. 12. 17	
	31	70. 43. 55		72. 15. 22		73. 46. 40		75. 17. 47		76. 48. 45		78. 19. 34		79. 50. 15		81. 20. 47	
	A. 1	82. 51. 12															

CONFIGURATIONS of the SATELLITES of JUPITER

at Half an Hour past VII o'Clock in the *Evening*.

1		.2	○	1.	.3	.4
2	1.○		○	.2	3.	4.
3	3●		1. ○	2.		4.
4		3. 2.	○	.1	4.	
5		.3	1. .2	○	4.	
6			.3	○	1. .2	
7		4.	.1	○	2. .3	
8		4. .2	○	1.	.3	
9	Δ.		.1 ○	.2	3.	
10	.4		○	3. 2.		1●
11	.4	3. 2.	○	.1		
12		.4.3	.2	○		
13		.3.4	○	.1 .2		
14		.1	○	2. 4.3		
15		2.	○	1.	.4.3	
16	2.○		.1 ○		3.	.4
17			○	1. 3.	2.	.4
18	1.○	3. 2.	○			4.
19		3. .2	1. ○			4.
20		.3	○	.1 .2		4.
21	3.○		1. ○	2. 4.		
22		2.	○	4. 1.	.3	
23	2.○	4. .1	○		3.	
24		4.	○	1. 3. 2.		
25	4.	3. 2.	○			1.○
26	4.	3. .2	○			1●
27	.4	.3	○	.1 .2		
28	3.○ .4		1. ○	2.		
29		.4 2.	○	.1 .3		
30			1 ○ 4.2	○	3.	
31			○	1. 4. 3. .2		

Days of the Week.	Days of the Month.	Sundays, Holidays, Terms, &c.	Phases of the MOON.
			D. H. M.
			● New Moon - - - - 4. 19. 21
			☾ First Quarter - - - - 12. 19. 47
			○ Full Moon - - - - 19. 11. 40
			☾ Last Quarter - - - - 26. 8. 30
			Other Phenomena.
			D. H. M.
M.	1		6. 23. 37 ☾ ♀
Tu.	2	[Bp. of Chich.	8. 8. 6 ☾ 2f
W.	3	Oxf. and Cam. T. beg. R ^d .	9. 14. 9 ☾ ♂
Th.	4	St. Ambrose.	10. 10. 41 ¹ / ₂ I. 125 ♂, * $0\frac{1}{2}$ S $1\frac{1}{4}$ N ☾'s C.
F.	5		10. 11. 36 E. 12. 6. 30 ☾ 2 II
Sa.	6		13. 1. 21 ☾ 2 ad ↓ ☽
Sun.	7	2d Sunday after Easter.	15. 3. 21 ☾ n Ω
M.	8	In 15 days after East. 1 r.	16. 11. 53 ☾ i Ω
Tu.	9		18. 0. 9 ☾ γ η
W.	10	Easter Term begins.	18. 12. 13 ¹ / ₄ I. 0 η, * $5\frac{3}{4}$ S. of ☾'s C.
Th.	11		18. 13. 19 ¹ / ₂ E. 19. 14. 56 ☾ enters ♂
F.	12		19. 18. 26 ☾ λ η
Sa.	13		20. 7. 21 ☾ α =
Sun.	14	3d Sunday after Easter.	21. 9. 53 ² / ₃ I. δ m * $2\frac{2}{3}$ S. of ☾'s C.
M.	15	In 3 weeks after Easter,	21. 10. 55 E. $4\frac{3}{4}$ N. of ☾'s C.
Tu.	16	[2 ret.	24. 3. 10 ☾ φ †
W.	17		24. 7. 4 ☾ σ †
Th.	18		24. 11. 25 ☾ τ †
F.	19	Alphege.	26. - - ☽ Stationary.
Sa.	20		27. 5. 14 ☾ ε v
Sun.	21	4th Sunday after Easter.	28. - - ♂ 132 ♂, * 7' South.
M.	22	In 1 month after Easter,	29. 8. 41 ☾ 1 ad ↓ ~
Tu.	23	St. George. [3 ret.	29. 9. 34 ☾ 2 ad ↓ ~
W.	24		29. 9. 42 ☾ 3 ad ↓ ~
Th.	25	St. Mark. Prs. Mary born.	
F.	26		
Sa.	27		
Sun.	28	[Rog. Sun.	
M.	29	5th Sunday after Easter.	
Tu.	30	In 5 weeks after Easter,	
		[4 ret.	

Days of the Week.	Days of the Month.	T H E S U N ' s			Equation	Diff.
		Longitude.	R ^t . Ascen.	Declin.	of Time.	
			<i>in Time.</i>	<i>North.</i>	<i>Add.</i>	
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	S.
M.	1	0. 11. 45. 35	0. 43. 14. 7	4. 39. 18	3. 53. 0	18, 2
Tu.	2	0. 12. 44. 40	0. 46. 53. 0	5. 2. 23	3. 34. 8	18, 0
W.	3	0. 13. 43. 43	0. 50. 31. 5	5. 25. 22	3. 16. 8	17, 9
Th.	4	0. 14. 42. 44	0. 54. 10. 1	5. 48. 15	2. 58. 9	17, 7
F.	5	0. 15. 41. 43	0. 57. 48. 9	6. 11. 3	2. 41. 2	17, 5
Sa.	6	0. 16. 40. 40	1. 1. 27. 9	6. 33. 44	2. 23. 7	17, 3
Sun.	7	0. 17. 39. 35	1. 5. 7. 1	6. 56. 18	2. 6. 4	17, 1
M.	8	0. 18. 38. 28	1. 8. 46. 5	7. 18. 45	1. 49. 3	16, 9
Tu.	9	0. 19. 37. 18	1. 12. 26. 2	7. 41. 5	1. 32. 4	16, 6
W.	10	0. 20. 36. 6	1. 16. 6. 1	8. 3. 17	1. 15. 8	16, 4
Th.	11	0. 21. 34. 52	1. 19. 46. 2	8. 25. 20	0. 59. 4	16, 1
F.	12	0. 22. 33. 36	1. 23. 26. 6	8. 47. 15	0. 43. 3	15, 8
Sa.	13	0. 23. 32. 17	1. 27. 7. 3	9. 9. 2	0. 27. 5	15, 5
Sun.	14	0. 24. 30. 56	1. 30. 48. 3	9. 30. 39	0. 12. 0	15, 2
M.	15	0. 25. 29. 33	1. 34. 29. 7	9. 52. 6	Sub. 3. 2	14, 8
Tu.	16	0. 26. 28. 8	1. 38. 11. 4	10. 13. 24	0. 18. 0	14, 5
W.	17	0. 27. 26. 40	1. 41. 53. 4	10. 34. 32	0. 32. 5	14, 1
Th.	18	0. 28. 25. 10	1. 45. 35. 8	10. 55. 28	0. 46. 6	13, 7
F.	19	0. 29. 23. 38	1. 49. 18. 6	11. 16. 15	1. 0. 3	13, 3
Sa.	20	1. 0. 22. 5	1. 53. 1. 8	11. 36. 50	1. 13. 6	12, 9
Sun.	21	1. 1. 20. 29	1. 56. 45. 4	11. 57. 14	1. 26. 5	12, 4
M.	22	1. 2. 18. 52	2. 0. 29. 5	12. 17. 26	1. 38. 9	12, 0
Tu.	23	1. 3. 17. 13	2. 4. 14. 1	12. 37. 26	1. 50. 9	11, 5
W.	24	1. 4. 15. 33	2. 7. 59. 1	12. 57. 14	2. 2. 4	11, 0
Th.	25	1. 5. 13. 51	2. 11. 44. 7	13. 16. 49	2. 13. 4	10, 5
F.	26	1. 6. 12. 7	2. 15. 30. 7	13. 36. 11	2. 23. 9	9, 9
Sa.	27	1. 7. 10. 23	2. 19. 17. 3	13. 55. 20	2. 33. 8	9, 5
Sun.	28	1. 8. 8. 37	2. 23. 4. 4	14. 14. 16	2. 43. 3	8, 9
M.	29	1. 9. 6. 49	2. 26. 52. 0	14. 32. 58	2. 52. 2	8, 3
Tu.	30	1. 10. 5. 0	2. 30. 40. 2	14. 51. 25	3. 0. 5	

Days	Time of ☉'s Semidiam. pass ^s Merid.	THE SUN'S			Place of the ☽'s Node.
	M. S.	Semi- diameter	Hourly Motion.	Logar. Distance.	S. D. M.
1	1. 4. 4	16. 2. 4	2. 27. 7	0.000181	1. 17. 46
7	1. 4. 5	16. 0. 7	2. 27. 2	0.000930	1. 17. 27
13	1. 4. 8	15. 59. 2	2. 26. 6	0.001649	1. 17. 8
19	1. 5. 1	15. 57. 6	2. 26. 1	0.002350	1. 16. 49
25	1. 5. 5	15. 56. 1	2. 25. 6	0.003051	1. 16. 30

ECLIPSES of the SATELLITES of JUPITER.

I. Satellite.		II. Satellite.		III. Satellite.	
<i>Emerfions.</i>		<i>Emerfions.</i>			
Days.	H. M. S.	Days.	H. M. S.	Days.	H. M. S.
* 2	9. 31. 53	1	9. 45. 31	1	1. 44. 1 Im.
4	4. 1. 19	4	23. 4. 15	1	3. 54. 58 E.
5	22. 30. 44	8	12. 23. 3	8	5. 47. 12 Im.
7	17. 0. 10	12	1. 41. 48	* 8	7. 59. 10 E.
9	11. 29. 32	15	15. 0. 21	15	9. 50. 1 Im.
11	5. 58. 59	19	4. 18. 50	15	12. 3. 6 E.
13	0. 28. 18	22	17. 37. 13	22	13. 52. 29 Im.
14	18. 57. 42	26	6. 55. 23	22	16. 6. 39 E.
16	13. 26. 59	29	20. 13. 31	29	17. 54. 29 Im.
* 18	7. 56. 17			29	20. 9. 44 E.
20	2. 25. 34			IV. Satellite. Conj.	
21	20. 54. 50				
23	15. 24. 1				
25	9. 53. 15			* 8	7. 39 Sup.
27	4. 22. 22			16	16. 42 Int.
28	22. 51. 31			25	4. 20 Sup.
30	17. 20. 38				

THE PLANETS							
Days	Heliocentric		Geocentric		Declin.	Passage Merid.	
	Long.	Lat.	Long.	Lat.			
	S. D. M.	D. M.	S. D. M.	D. M.	D. M.	H. M.	
♄ Gr. Elong. 16°. <i>M E R C U R Y</i> .							
1	2. 2. 41	2. 1 N	0. 23. 5	0. 31 N	9. 28 N	0. 40	
4	2. 21. 36	4. 5	0. 28. 51	1. 5	12. 6	0. 52	
7	3. 10. 20	5. 42	1. 4. 10	1. 38	14. 28	1. 0	
10	3. 28. 16	6. 40	1. 8. 55	2. 7	16. 30	1. 7	
13	4. 14. 59	7. 0	1. 12. 58	2. 31	18. 9	1. 12	
16	5. 0. 16	6. 47	1. 16. 14	2. 46	19. 22	1. 13	
19	5. 14. 8	6. 11	1. 18. 41	2. 53	20. 10	1. 12	
22	5. 26. 44	5. 19	1. 20. 16	2. 49	20. 33	1. 7	
25	6. 8. 14	4. 18	1. 20. 59	2. 34	20. 30	0. 59	
28	6. 18. 49	3. 12	1. 20. 52	2. 8	20. 3	0. 48	
30	6. 25. 28	2. 28	1. 20. 23	1. 45	19. 33	0. 39	
♀ <i>V E N U S</i> .							
1	2. 5. 26	0. 33 S	1. 3. 54	0. 16 S	12. 35 N	1. 24	
7	2. 15. 5	0. 1 N	1. 11. 15	0. 0	15. 14	1. 30	
13	2. 24. 46	0. 35	1. 18. 35	0. 17 N	17. 39	1. 37	
19	3. 4. 28	1. 8	1. 25. 53	0. 34	19. 48	1. 44	
25	3. 14. 11	1. 40	2. 3. 9	0. 50	21. 38	1. 52	
♂ <i>M A R S</i> .							
1	3. 8. 1	1. 25 N	2. 7. 2	1. 10 N	22. 40 N	3. 37	
7	3. 10. 51	1. 28	2. 10. 50	1. 11	23. 16	3. 31	
13	3. 13. 40	1. 32	2. 14. 38	1. 12	23. 47	3. 25	
19	3. 16. 28	1. 34	2. 18. 25	1. 13	24. 11	3. 20	
25	3. 19. 15	1. 37	2. 22. 13	1. 14	24. 28	3. 14	
♃ <i>J U P I T E R</i> .							
1	2. 3. 47	0. 46 S	1. 25. 51	0. 40 S	18. 35 N	2. 51	
7	2. 4. 19	0. 45	1. 27. 4	0. 39	18. 53	2. 34	
13	2. 4. 51	0. 45	1. 28. 20	0. 39	19. 11	2. 18	
19	2. 5. 23	0. 44	1. 29. 37	0. 38	19. 29	2. 1	
25	2. 5. 54	0. 43	2. 0. 56	0. 37	19. 46	1. 44	
♄ <i>S A T U R N</i> . □ 8 ^d . 22 ^h .							
1	3. 25. 37	0. 10 N	3. 19. 20	0. 10 N	22. 14 N	6. 40	
7	3. 25. 51	0. 10	3. 19. 29	0. 10	22. 13	6. 18	
13	3. 26. 4	0. 11	3. 19. 43	0. 11	22. 12	5. 57	
19	3. 26. 17	0. 11	3. 20. 0	0. 11	22. 10	5. 37	
25	3. 26. 31	0. 12	3. 20. 20	0. 12	22. 7	5. 16	
♂ <i>G E O R G I A N</i> .							
1	5. 20. 51	0. 46 N	5. 19. 39	0. 48 N	4. 50 N	10. 38	
11	5. 20. 58	0. 46	5. 19. 17	0. 48	4. 59	10. 1	
21	5. 21. 6	0. 46	5. 18. 58	0. 48	5. 6	9. 22	

Days of the Week.	Days of the Month.	T H E M O O N ' s			
		Longitude.		Latitude.	
		Noon.	Midnight.	Noon.	Midnight.
		S. D. M. S.	S. D. M. S.	D. M. S.	D. M. S.
M.	1	11. 0. 9. 58	11. 6. 12. 0	5. 2. 7 S	4. 52. 36 S
Tu.	2	11. 12. 12. 7	11. 18. 10. 39	4. 39. 52	4. 24. 8
W.	3	11. 24. 7. 47	0. 0. 3. 51	4. 5. 34	3. 44. 24
Th.	4	0. 5. 59. 1	0. 11. 53. 34	3. 20. 49	2. 55. 5
F.	5	0. 17. 47. 42	0. 23. 41. 40	2. 27. 29	1. 58. 16
Sa.	6	0. 29. 35. 44	1. 5. 30. 11	1. 27. 45	0. 56. 13 S
Sun.	7	1. 11. 25. 16	1. 17. 21. 21	0. 23. 59 S	0. 8. 38 N
M.	8	1. 23. 18. 45	1. 29. 17. 51	0. 41. 18 N	1. 13. 42
Tu.	9	2. 5. 19. 5	2. 11. 22. 52	1. 45. 28	2. 16. 19
W.	10	2. 17. 29. 39	2. 23. 39. 58	2. 45. 51	3. 13. 47
Th.	11	2. 29. 54. 15	3. 6. 13. 4	3. 39. 41	4. 3. 16
F.	12	3. 12. 36. 52	3. 19. 6. 7	4. 24. 8	4. 41. 56
Sa.	13	3. 25. 41. 15	4. 2. 22. 38	4. 56. 19	5. 6. 56
Sun.	14	4. 9. 10. 31	4. 16. 5. 7	5. 13. 27	5. 15. 35
M.	15	4. 23. 6. 25	5. 0. 14. 19	5. 13. 5	5. 5. 45
Tu.	16	5. 7. 28. 33	5. 14. 48. 38	4. 53. 29	4. 36. 17
W.	17	5. 22. 13. 56	5. 29. 43. 36	4. 14. 16	3. 47. 40
Th.	18	6. 7. 16. 41	6. 14. 52. 2	3. 16. 55	2. 42. 31
F.	19	6. 22. 28. 30	7. 0. 4. 47	2. 5. 6	1. 25. 28
Sa.	20	7. 7. 39. 42	7. 15. 12. 2	0. 44. 24 N	0. 2. 46 N
Sun.	21	7. 22. 40. 45	8. 0. 4. 51	0. 38. 36 S	1. 18. 55 S
M.	22	8. 7. 23. 37	8. 14. 36. 23	1. 57. 26	2. 33. 34
Tu.	23	8. 21. 42. 45	8. 28. 42. 25	3. 6. 45	3. 36. 37
W.	24	9. 5. 35. 20	9. 12. 21. 31	4. 2. 50	4. 25. 12
Th.	25	9. 19. 1. 8	9. 25. 34. 29	4. 43. 36	4. 57. 59
F.	26	10. 2. 1. 56	10. 8. 23. 55	5. 8. 20	5. 14. 44
Sa.	27	10. 14. 40. 52	10. 20. 53. 18	5. 17. 17	5. 16. 5
Sun.	28	10. 27. 1. 43	11. 3. 6. 39	5. 11. 15	5. 2. 58
M.	29	11. 9. 8. 36	11. 15. 8. 4	4. 51. 23	4. 36. 42
Tu.	30	11. 21. 5. 31	11. 27. 1. 26	4. 19. 5	3. 58. 46

		THE M O O N ' s					
Week. Days of the Week.	Days of the Month.	Passage		Right Ascension.		Declination.	
		Age.	Merid.	Noon.	Midnight.	Noon.	Midnight.
		D.	H. M.	D. M.	D. M.	D. M.	D. M.
M.	1	27	22. 11	334. 6	339. 50	16. 8 S	13. 46 S
Tu.	2	28	22. 52	345. 24	350. 52	11. 18	8. 44
W.	3	29	23. 32	356. 14	1. 33	6. 5	3. 24 S
Th.	4	1	0	6. 49	12. 4	0. 42 S	2. 1 N
F.	5	2	0. 12	17. 21	22. 40	4. 43 N	7. 23
Sa.	6	3	0. 52	28. 3	33. 31	9. 58	12. 29
Sun.	7	4	1. 34	39. 7	44. 51	14. 54	17. 10
M.	8	5	2. 19	50. 44	56. 48	19. 17	21. 13
Tu.	9	6	3. 6	63. 3	69. 29	22. 57	24. 26
W.	10	7	3. 57	76. 7	82. 56	25. 38	26. 33
Th.	11	8	4. 51	89. 54	96. 59	27. 8	27. 22
F.	12	9	5. 46	104. 11	111. 25	27. 15	26. 45
Sa.	13	10	6. 43	118. 41	125. 56	25. 53	24. 38
Sun.	14	11	7. 38	133. 7	140. 14	23. 1	21. 3
M.	15	12	8. 33	147. 15	154. 11	18. 45	16. 10
Tu.	16	13	9. 26	161. 2	167. 49	13. 19	10. 14
W.	17	14	10. 18	174. 33	181. 16	6. 59	3. 35 N
Th.	18	15	11. 10	187. 59	194. 44	0. 7 N	3. 22 S
F.	19	16	12. 3	201. 34	208. 29	6. 49 S	10. 11
Sa.	20	17	12. 59	215. 33	222. 45	13. 23	16. 22
Sun.	21	18	13. 57	230. 6	237. 36	19. 5	21. 29
M.	22	19	14. 57	245. 14	252. 58	23. 30	25. 7
Tu.	23	20	15. 57	260. 46	268. 33	26. 19	27. 4
W.	24	21	16. 57	276. 17	283. 54	27. 24	27. 18
Th.	25	22	17. 53	291. 20	298. 34	26. 48	25. 56
F.	26	23	18. 45	305. 34	312. 19	24. 44	23. 15
Sa.	27	24	19. 32	318. 49	325. 4	21. 30	19. 32
Sun.	28	25	20. 17	331. 6	336. 56	17. 23	15. 5
M.	29	26	20. 58	342. 36	348. 8	12. 39	10. 7
Tu.	30	27	21. 38	353. 32	358. 51	7. 30	4. 50

Days of the Week.	Days of the Month.	THE MOON'S				Proportional Logarithm.	
		Semidiameter.		Hor. Parallax.			
		Noon.	Midnight.	Noon.	Midnight.	Noon.	Midn.
		M. S.	M. S.	M. S.	M. S.		
M.	1	14. 55	14. 52	54. 44	54. 34	5170	5183
Tu.	2	14. 50	14. 48	54. 25	54. 18	5195	5205
W.	3	14. 46	14. 45	54. 12	54. 9	5213	5217
Th.	4	14. 45	14. 44	54. 6	54. 4	5221	5223
F.	5	14. 44	14. 45	54. 4	54. 6	5223	5221
Sa.	6	14. 45	14. 46	54. 8	54. 12	5218	5213
Sun.	7	14. 48	14. 49	54. 17	54. 24	5206	5197
M.	8	14. 52	14. 54	54. 32	54. 42	5186	5173
Tu.	9	14. 58	15. 1	54. 54	55. 8	5157	5138
W.	10	15. 6	15. 10	55. 23	55. 40	5119	5097
Th.	11	15. 15	15. 21	55. 59	56. 20	5072	5045
F.	12	15. 27	15. 34	56. 42	57. 6	5017	4986
Sa.	13	15. 41	15. 48	57. 32	57. 58	4953	4921
Sun.	14	15. 55	16. 2	58. 25	58. 52	4887	4854
M.	15	16. 10	16. 17	59. 19	59. 45	4821	4789
Tu.	16	16. 23	16. 30	60. 9	60. 32	4760	4733
W.	17	16. 35	16. 40	60. 52	61. 8	4709	4690
Th.	18	16. 43	16. 45	61. 20	61. 28	4676	4666
F.	19	16. 46	16. 45	61. 31	61. 29	4663	4665
Sa.	20	16. 43	16. 40	61. 22	61. 10	4673	4687
Sun.	21	16. 36	16. 31	60. 54	60. 35	4707	4729
M.	22	16. 25	16. 17	60. 13	59. 47	4755	4787
Tu.	23	16. 10	16. 2	59. 19	58. 50	4821	4856
W.	24	15. 54	15. 46	58. 21	57. 52	4892	4928
Th.	25	15. 38	15. 31	57. 24	56. 57	4964	4998
F.	26	15. 24	15. 17	56. 31	56. 7	5031	5062
Sa.	27	15. 11	15. 6	55. 45	55. 26	5090	5115
Sun.	28	15. 1	14. 57	55. 8	54. 52	5138	5159
M.	29	14. 54	14. 51	54. 39	54. 29	5177	5190
Tu.	30	14. 48	14. 47	54. 20	54. 14	5202	5210

DISTANCES of MOON's Center from SUN, and from STARS EAST of her.

Stars Names.	Days	Noon.		III ^h .	VI ^h .	IX ^h .	Midnight.	XV ^h .		XVIII ^h .	XXI ^h .
		D. M. S.	D. M. S.					D. M. S.	D. M. S.		
Pollux.	6	- - -	- - -	- - -	- - -	- - -	75. 10. 0	73. 41. 0	72. 11. 58	70. 42. 52	
	7	69. 13. 42	67. 44. 29	66. 15. 11	64. 45. 49	63. 16. 23	61. 46. 52	61. 46. 52	60. 17. 16	58. 47. 34	
	8	57. 17. 47	55. 47. 54	54. 17. 54	52. 47. 47	51. 17. 34	49. 47. 14	49. 47. 14	48. 16. 46	46. 46. 10	
Regulus.	9	45. 15. 27	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	10	81. 42. 47	80. 12. 7	78. 41. 18	77. 10. 20	75. 39. 12	74. 7. 54	74. 7. 54	72. 36. 26	71. 4. 46	
	11	69. 32. 56	68. 0. 54	66. 28. 39	64. 56. 12	63. 23. 33	61. 50. 41	61. 50. 41	60. 17. 36	58. 44. 16	
	12	57. 10. 43	55. 36. 55	54. 2. 51	52. 28. 33	50. 53. 59	49. 19. 9	49. 19. 9	47. 44. 3	46. 8. 41	
	13	44. 33. 2	42. 57. 6	41. 20. 53	39. 44. 23	38. 7. 37	36. 30. 33	36. 30. 33	34. 53. 12	33. 15. 36	
Spica μ	13	31. 37. 44	29. 59. 37	28. 21. 15	26. 42. 40	25. 3. 50	23. 41. 17	22. 13. 37	20. 32. 32	19. 51. 4	
	14	- - -	- - -	- - -	- - -	- - -	78. 54. 17	77. 13. 37	75. 32. 32	73. 51. 4	
	15	72. 9. 11	70. 26. 54	68. 44. 13	67. 1. 8	65. 17. 38	63. 33. 43	63. 33. 43	61. 49. 24	60. 4. 41	
	16	58. 19. 33	56. 34. 1	54. 48. 6	53. 1. 47	51. 15. 5	49. 27. 59	49. 27. 59	47. 40. 31	45. 52. 41	
	17	44. 4. 30	42. 15. 57	40. 27. 6	38. 37. 56	36. 48. 28	34. 58. 44	34. 58. 44	33. 8. 45	31. 18. 31	
Antares.	17	29. 28. 4	- - -	- - -	- - -	- - -	67. 41. 16	65. 48. 24	63. 55. 20	62. 2. 4	
	18	75. 10. 6	73. 18. 19	71. 26. 14	69. 33. 53	67. 41. 16	65. 48. 24	65. 48. 24	63. 55. 20	62. 2. 4	
	19	60. 8. 36	58. 14. 57	56. 21. 11	54. 27. 17	52. 33. 16	50. 39. 9	50. 39. 9	48. 44. 59	46. 50. 46	
	20	44. 56. 31	43. 2. 16	41. 8. 5	39. 13. 56	37. 19. 51	35. 25. 52	35. 25. 52	33. 32. 1	31. 38. 18	

Stars Names.	Days	Noon.		III ^h .		VI ^h .		IX ^h .		Midnight.		XV ^h .		XVIII ^h .		XXI ^h .	
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
Regulus.	17	25. 26. 51	27. 16. 52	29. 7. 22	30. 58. 19	32. 49. 41	34. 41. 26	36. 33. 31	38. 25. 54	47. 51. 25	49. 45. 2	51. 38. 46	53. 32. 36	55. 26. 29	57. 20. 25	59. 14. 20	61. 8. 16
	18	40. 18. 35	42. 11. 30	44. 4. 37	45. 57. 54	47. 51. 25	49. 45. 2	51. 38. 46	53. 32. 36	63. 2. 10	64. 56. 1	66. 49. 47	68. 43. 28	70. 37. 1	72. 30. 25	74. 24. 20	76. 18. 16
	19	55. 26. 29	57. 20. 25	59. 14. 20	61. 8. 16	63. 2. 10	64. 56. 1	66. 49. 47	68. 43. 28	67. 35. 9	68. 43. 28	69. 56. 1	71. 10. 25	72. 24. 20	73. 38. 16	75. 52. 11	77. 6. 7
	20	70. 37. 1	72. 30. 25	74. 24. 20	76. 18. 16	78. 12. 11	80. 6. 7	82. 0. 25	83. 14. 20	81. 42. 31	82. 0. 25	83. 14. 20	84. 28. 15	85. 42. 10	86. 56. 5	88. 10. 25	89. 24. 20
Spica ♀	20	16. 50. 45	18. 41. 22	20. 32. 15	22. 23. 18	24. 14. 29	26. 5. 47	28. 5. 47	29. 48. 14	24. 14. 29	26. 5. 47	27. 57. 2	29. 48. 14	30. 39. 16	31. 30. 25	32. 21. 51	33. 13. 6
	21	31. 39. 23	33. 30. 16	35. 20. 55	37. 11. 21	39. 1. 33	40. 51. 27	42. 41. 1	44. 30. 16	39. 1. 33	40. 51. 27	42. 41. 1	44. 30. 16	45. 20. 55	46. 11. 21	47. 2. 10	48. 13. 6
	22	46. 19. 12	48. 7. 45	49. 55. 55	51. 43. 42	53. 31. 6	55. 18. 5	57. 4. 39	58. 50. 49	53. 31. 6	55. 18. 5	57. 4. 39	58. 50. 49	59. 41. 22	60. 32. 15	61. 23. 18	62. 14. 29
	23	60. 36. 33	62. 21. 51	64. 6. 43	65. 51. 9	67. 35. 9	68. 43. 28	69. 56. 1	71. 10. 25	67. 35. 9	68. 43. 28	69. 56. 1	71. 10. 25	72. 24. 20	73. 38. 16	74. 52. 11	75. 6. 7
Antares.	23	- - -	- - -	- - -	- - -	21. 42. 31	23. 25. 42	25. 8. 29	26. 50. 54	21. 42. 31	23. 25. 42	25. 8. 29	26. 50. 54	27. 57. 2	29. 48. 14	31. 39. 23	33. 30. 16
	24	28. 32. 55	30. 14. 33	31. 55. 47	33. 36. 38	35. 17. 4	36. 57. 5	38. 36. 43	40. 15. 56	35. 17. 4	36. 57. 5	38. 36. 43	40. 15. 56	41. 58. 1	43. 49. 2	45. 40. 3	47. 31. 4
	25	41. 54. 46	43. 33. 12	45. 11. 14	46. 48. 54	48. 26. 10	50. 3. 4	51. 39. 36	53. 15. 46	48. 26. 10	50. 3. 4	51. 39. 36	53. 15. 46	54. 51. 35	56. 27. 4	58. 8. 25	59. 14. 20
	26	54. 51. 35	56. 27. 4	58. 2. 13	59. 37. 2	61. 11. 31	62. 45. 41	64. 19. 33	65. 53. 8	61. 11. 31	62. 45. 41	64. 19. 33	65. 53. 8	66. 49. 47	68. 43. 28	70. 37. 1	72. 30. 25
	27	67. 26. 24	68. 59. 24	70. 32. 7	72. 4. 36	73. 36. 48	75. 8. 46	76. 40. 31	78. 12. 2	73. 36. 48	75. 8. 46	76. 40. 31	78. 12. 2	79. 43. 19	81. 14. 24	82. 45. 17	84. 15. 59
	28	79. 43. 19	81. 14. 24	82. 45. 17	84. 15. 59	85. 46. 30	87. 16. 50	88. 47. 1	90. 17. 3	85. 46. 30	87. 16. 50	88. 47. 1	90. 17. 3	91. 46. 55	93. 16. 39	94. 46. 15	96. 15. 44
	29	91. 46. 55	93. 16. 39	94. 46. 15	96. 15. 44	97. 45. 5	99. 14. 20	100. 43. 29	102. 12. 32	97. 45. 5	99. 14. 20	100. 43. 29	102. 12. 32	103. 41. 30	105. 10. 23	106. 39. 12	108. 7. 58
	30	103. 41. 30	105. 10. 23	106. 39. 12	108. 7. 58	109. 36. 40	111. 5. 19	112. 33. 53	114. 2. 28	109. 36. 40	111. 5. 19	112. 33. 53	114. 2. 28	115. 30. 59	117. 1. 47	118. 12. 35	119. 23. 24
	M. 1	115. 30. 59	117. 1. 47	118. 12. 35	119. 23. 24	120. 34. 12	121. 45. 3	122. 56. 11	123. 6. 59	120. 34. 12	121. 45. 3	122. 56. 11	123. 6. 59	124. 17. 47	125. 28. 35	126. 39. 23	127. 50. 11

CONFIGURATIONS of the SATELLITES of JUPITER
at VIII o'Clock in the *Evening*.

1	2 ●			3. .1	○		.4
2	1 ●		3.	.2	○		.4
3			.3		○	.1 .2	.4
4				1. .3	○	2.	4.
5			2.		○	.1 .3	4.
6				.1 .2	○		.3 4.
7					○	1. 4. 3.	
8	2 ● 4 ○			.1 3.	○		
9			3. 4. .2		○	1.	
10		4.	.3		○	.1 .2	
11	4.			.3 1.	○	2.	
12	4.			2.	○	.1 .3	
13	.4			1. 2	○		.3
14	.4				○	1. .2 3.	
15	3 ●		.4	.1	○	2.	
16			3. 2.	.4	○	1.	
17	1. ○		.3		○	.2 .4	
18			.3	1.	○	2.	.4
19			2.		○	.1 .3	.4
20			.2 1.		○		.3 .4
21					○	.1 .2 3.	4.
22			.1		○	3. 2.	4.
23			3. 2.		○	1.	4.
24	2. ○		.3	.1	○	4.	
25	1 ●		.3	4.	○	2.	
26			4.	2.	○	1 ○ 3	
27		4.	.2 1.		○		.3
28	4.				○	1 ○ 2	3.
29	4.		.1		○	2 ○ 3	
30	.4		2 ○ 3		○	1.	

Days of the Week.	Days of the Month.	Sundays, Holidays, Terms, &c.	Phases of the MOON.	
			D. H. M.	
			● New Moon - - - - -	4. 12. 14
			☾ First Quarter - - - - -	12. 5. 9
			○ Full Moon - - - - -	18. 19. 51
			☾ Last Quarter - - - - -	25. 23. 5
			Other Phenomena.	
			D. H. M.	
W.	1	<i>St. Philip and St. James.</i>	4. - - -	☉ eclipsed, invisible.
Th.	2	<i>Ascens. Day, Holy-Thurs.</i>	6. 19. 48 $\frac{1}{2}$	Ingress of ☿ on ☉'s Disk,
F.	3	<i>Invention of the Crois.</i>		☿ Lat. 2 $\frac{1}{2}$ ' South,
Sa.	4	[On mor. of Asc. 5 ret.]	7. 3. 19 $\frac{3}{4}$	Egress, ☿'s Lat. 7 $\frac{3}{4}$ ' S.
Sun.	5	<i>Sunday after Ascension.</i>	7. 6. 37	☾ ♀
M.	6	<i>East. T. ends J. Ev. ante.</i>	7. 15. 43	☾ 12 $\frac{5}{8}$
Tu.	7	[Port. lat.]	9. 12. 25	☾ 2 $\frac{1}{2}$ ☐
W.	8		10. 7. 30	☾ 2 ad ↓ ☽
Th.	9	<i>Oxford Term ends.</i>	12. 10. 45	☾ 7 ☉
F.	10		12. - - -	☿ 132 $\frac{1}{2}$ ☿, * 26 $\frac{1}{2}$ ' S.
Sa.	11		15. 9. 50	☾ 7 ☿
Sun.	12	<i>Whit-Sunday.</i>	15. 22. 57	☾ 0 ☿
M.	13	<i>Whit-Monday.</i>	17. 5. 5	☾ 1 ☿
Tu.	14	<i>Whit-Tuesday</i>	17. 18. 9	☾ 1 ☽
W.	15		18. 14. 32	☾ 1 ☽
Th.	16		18. - - -	☿ 1 ☐, * 47 $\frac{1}{2}$ ' North.
F.	17		18. 22. 18	☾ 1 ☐
Sa.	18		20. 5. 9	☾ 0 Ophiuchi.
Sun.	19	<i>Tr. Sun. Qu. Charl. born.</i>	20. - - -	☿ Stationary.
M.	20	[Dunst. Cam. T. div. m.]	20. 15. 25	☉ enters ☐
Tu.	21	[On mor. of H. T. 1 ret.]	21. 12. 51	☾ 0 ♀
W.	22	<i>Prs. Eliz b. Oxf. T. beg.</i>	21. 16. 40	☾ 0 ♀
Th.	23		21. 20. 55	☾ 1 ♀
F.	24	<i>Trinity Term begins.</i>	23. - - -	☿ 1 ☐, * 11' North.
Sa.	25		24. 12. 59	☾ 1 ☽
Sun.	26	<i>1st Sun. aft. Tr. Aug. 1st</i>	26. 15. 37	☾ 1 ad ↓ ☽
M.	27	<i>Vene. Bede. [Abp. Cant.]</i>	26. 16. 29	☾ 2 ad ↓ ☽
Tu.	28	[In 8 days of H. T. 2 r.]	26. 16. 37	☾ 3 ad ↓ ☽
W.	29	<i>K. Charles II restored.</i>	26. - - -	☿ Stationary.
Th.	30		28. - - -	☿ ☽ diff. Lat. 43'
F.	31			

Days of the Week.	Days of the Month.	THE S U N's			Equation of Time. Sub.	Diff.
		Longitude.	R ^t . Ascen. <i>in Time.</i>	Declin. <i>North.</i>		
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	S.
W.	1	1. 11. 3. 10	2. 34. 28, 9	15. 9. 38	3. 8, 2	
Th.	2	1. 12. 1. 18	2. 38. 18, 2	15. 27. 36	3. 15, 5	7, 3
F.	3	1. 12. 59. 25	2. 42. 8, 1	15. 45. 19	3. 22, 2	6, 7
Sa.	4	1. 13. 57. 30	2. 45. 58, 5	16. 2. 46	3. 28, 3	6, 1
Sun.	5	1. 14. 55. 34	2. 49. 49, 5	16. 19. 57	3. 33, 9	5, 6
						5, 0
M.	6	1. 15. 53. 36	2. 53. 41, 1	16. 36. 52	3. 38, 9	
Tu.	7	1. 16. 51. 36	2. 57. 33, 2	16. 53. 31	3. 43, 3	4, 4
W.	8	1. 17. 49. 34	3. 1. 25, 9	17. 9. 52	3. 47, 2	3, 9
Th.	9	1. 18. 47. 31	3. 5. 19, 1	17. 25. 57	3. 50, 5	3, 3
F.	10	1. 19. 45. 26	3. 9. 12, 9	17. 41. 43	3. 53, 2	2, 7
						2, 2
Sa.	11	1. 20. 43. 18	3. 13. 7, 2	17. 57. 12	3. 55, 4	
Sun.	12	1. 21. 41. 10	3. 17. 2, 1	18. 12. 23	3. 57, 1	1, 7
M.	13	1. 22. 38. 59	3. 20. 57, 6	18. 27. 16	3. 58, 2	1, 1
Tu.	14	1. 23. 36. 46	3. 24. 53, 6	18. 41. 50	3. 58, 8	0, 6
W.	15	1. 24. 34. 32	3. 28. 50, 1	18. 56. 6	3. 58, 8	0, 0
						0, 6
Th.	16	1. 25. 32. 17	3. 32. 47, 2	19. 10. 1	3. 58, 2	
F.	17	1. 26. 29. 59	3. 36. 44, 9	19. 23. 38	3. 57, 1	1, 1
Sa.	18	1. 27. 27. 40	3. 40. 43, 1	19. 36. 55	3. 55, 4	1, 7
Sun.	19	1. 28. 25. 20	3. 44. 41, 9	19. 49. 51	3. 53, 2	2, 2
M.	20	1. 29. 22. 59	3. 48. 41, 2	20. 2. 28	3. 50, 5	2, 7
						3, 3
Tu.	21	2. 0. 20. 36	3. 52. 41, 1	20. 14. 44	3. 47, 2	
W.	22	2. 1. 18. 12	3. 56. 41, 5	20. 26. 40	3. 43, 3	3, 9
Th.	23	2. 2. 15. 48	4. 0. 42, 5	20. 38. 14	3. 38, 9	4, 4
F.	24	2. 3. 13. 22	4. 4. 44, 0	20. 49. 28	3. 34, 0	4, 9
Sa.	25	2. 4. 10. 56	4. 8. 46, 0	21. 0. 20	3. 28, 5	5, 5
						6, 0
Sun.	26	2. 5. 8. 28	4. 12. 48, 6	21. 10. 51	3. 22, 5	
M.	27	2. 6. 6. 1	4. 16. 51, 7	21. 21. 0	3. 16, 0	6, 5
Tu.	28	2. 7. 3. 32	4. 20. 55, 3	21. 30. 47	3. 9, 0	7, 0
W.	29	2. 8. 1. 3	4. 24. 59, 3	21. 40. 12	3. 1, 5	7, 5
Th.	30	2. 8. 58. 33	4. 29. 3, 9	21. 49. 14	2. 53, 5	8, 0
						8, 4
F.	31	2. 9. 56. 2	4. 33. 8, 9	21. 57. 53	2. 45, 1	

Days	Time of ☉'s Semidiam. pass ^g Merid.	THE SUN'S			Place of the ☉'s Node.
	M. S.	Semi- diameter M. S.	Hourly Motion. M. S.	Logar. Distance.	S. D. M.
1	1. 5, 9	15. 54, 6	2. 25, 3	0. 003725	1. 16. 11
7	1. 6, 4	15. 53, 2	2. 24, 9	0. 004341	1. 15. 52
13	1. 6, 9	15. 52, 1	2. 24, 6	0. 004890	1. 15. 33
19	1. 7, 4	15. 50, 9	2. 24, 1	0. 005394	1. 15. 14
25	1. 7, 8	15. 49, 8	2. 23, 9	0. 005866	1. 14. 55

The ECLIPSES of JUPITER'S SATELLITES

are *not visible* this Month,

JUPITER being *too near* the SUN.

THE PLANETS						
Days	Heliocentric		Geocentric		Declin.	Passage Merid.
	Long.	Lat.	Long.	Lat.		
	S. D. M.	D. M.	S. D. M.	D. M.	D. M.	H. M.
♿ MERCURY. Transits ☉ 7 ^d .						
1	6.28.42	2. 5 N	1.20. 1	1.31 N	19.14N	0.34
4	7. 8. 0	0.59 N	1.18.36	0.46 N	18. 7	0.18
7	7.16.52	0. 7 S	1.16.51	0. 6 S	16.48	♄
10	7.25.25	1. 9	1.15. 4	0.58	15.28	23.37
13	8. 3.47	2. 9	1.13.29	1.46	14.13	23.20
16	8.12. 2	3. 5	1.12.22	2.29	13.12	23. 6
19	8.20.16	3.58	1.11.50	3. 2	12.31	22.53
22	8.28.36	4.45	1.11.58	3.26	12.11	22.43
25	9. 7. 6	5.28	1.12.47	3.40	12.12	22.35
28	9.15.52	6. 4	1.14.14	3.46	12.32	22.29
31	0.25. 1	6.32	1.16.18	3.43	13.11	22.26
♀ VENUS.						
1	3.23.55	2. 8 N	2.10.24	1. 6 N	23. 7N	2. 0
7	4. 3.40	2.33	2.17.37	1.20	24.14	2. 8
13	4.13.25	2.54	2.24.48	1.34	24.56	2.16
19	4.23.11	3. 9	3. 1.57	1.45	25.12	2.24
25	5. 2.56	3.19	3. 9. 3	1.54	25. 3	2.31
♂ MARS.						
1	3.22. 0	1.40 N	2.26. 0	1.14 N	24.39N	3. 8
7	3.24.45	1.42	2.29.47	1.15	24.43	3. 1
13	3.27.28	1.44	3. 3.34	1.15	24.40	2.55
19	4. 0.11	1.46	3. 7.21	1.15	24.31	2.47
25	4. 2.53	1.47	3.11. 7	1.15	24.15	2.40
♃ JUPITER. ☾ 30 ^d . 0 ^h .						
1	2. 6.26	0.43 S	2. 2.17	0.36 S	20. 3N	1.27
7	2. 6.58	0.42	2. 3.39	0.35	20.20	1. 9
13	2. 7.29	0.41	2. 5. 2	0.35	20.36	0.52
19	2. 8. 1	0.41	2. 6.25	0.34	20.51	0.34
25	2. 8.33	0.40	2. 7.49	0.34	21. 5	0.16
♄ SATURN.						
1	3.26.44	0.13 N	3.20.44	0.12 N	22. 4N	4.55
7	3.26.57	0.13	3.21.11	0.13	22. 0	4.34
13	3.27.11	0.14	3.21.41	0.13	21.56	4.12
19	3.27.24	0.14	3.22.13	0.13	21.51	3.51
25	3.27.37	0.15	3.22.48	0.14	21.46	3.29
♅ GEORGIAN.						
1	5.21.14	0.46 N	5.18.43	0.47 N	5.12N	8.44
11	5.21.22	0.46	5.18.33	0.47	5.15	8. 5
21	5.21.30	0.46	5.18.28	0.47	5.17	7.25

		THE M O O N ' s					
Days of the Week.	Days of the Month.	Longitude.			Latitude.		
		Noon.			Midnight.		
		S. D. M. S.	S. D. M. S.	S. D. M. S.	D. M. S.	D. M. S.	D. M. S.
W.	1	0. 2. 56. 14	0. 8. 50. 20	3. 35. 55 S	3. 10. 51 S		
Th.	2	0. 14. 44. 7	0. 20. 37. 57	2. 43. 45	2. 14. 53		
F.	3	0. 26. 32. 8	1. 2. 27. 0	1. 44. 32	1. 13. 0		
Sa.	4	1. 8. 22. 51	1. 14. 19. 57	0. 40. 35 S	0. 7. 36 S		
Sun.	5	1. 20. 18. 32	1. 26. 18. 53	0. 25. 36 N	0. 58. 41 N		
M.	6	2. 2. 21. 13	2. 8. 25. 47	1. 31. 17	2. 3. 3		
Tu.	7	2. 14. 32. 49	2. 20. 42. 38	2. 33. 37	3. 2. 37		
W.	8	2. 26. 55. 25	3. 3. 11. 26	3. 29. 41	3. 54. 28		
Th.	9	3. 9. 31. 1	3. 15. 54. 24	4. 16. 38	4. 35. 50		
F.	10	3. 22. 21. 53	3. 28. 53. 43	4. 51. 45	5. 4. 6		
Sa.	11	4. 5. 30. 10	4. 12. 11. 25	5. 12. 35	5. 16. 58		
Sun.	12	4. 18. 57. 41	4. 25. 49. 7	5. 17. 2	5. 12. 38		
M.	13	5. 2. 45. 43	5. 9. 47. 28	5. 3. 39	4. 50. 2		
Tu.	14	5. 16. 54. 14	5. 24. 5. 49	4. 31. 49	4. 9. 7		
W.	15	6. 1. 21. 50	6. 8. 41. 49	3. 42. 13	3. 11. 27		
Th.	16	6. 16. 5. 10	6. 23. 31. 8	2. 37. 16	2. 0. 12		
F.	17	7. 0. 58. 54	7. 8. 27. 33	1. 20. 56 N	0. 40. 12 N		
Sa.	18	7. 15. 56. 6	7. 23. 23. 31	0. 1. 12 S	0. 42. 27 S		
Sun.	19	8. 0. 48. 48	8. 8. 11. 0	1. 22. 47	2. 1. 26		
M.	20	8. 15. 29. 13	8. 22. 42. 43	2. 37. 42	3. 11. 2		
Tu.	21	8. 29. 50. 47	9. 6. 52. 56	3. 40. 55	4. 7. 0		
W.	22	9. 13. 48. 51	9. 20. 38. 16	4. 29. 3	4. 46. 53		
Th.	23	9. 27. 21. 12	10. 3. 57. 42	5. 0. 28	5. 9. 50		
F.	24	10. 10. 28. 0	10. 16. 52. 23	5. 15. 2	5. 16. 11		
Sa.	25	10. 23. 11. 17	10. 29. 25. 9	5. 13. 28	5. 7. 6		
Sun.	26	11. 5. 34. 28	11. 11. 39. 51	4. 57. 15	4. 44. 9		
M.	27	11. 17. 41. 50	11. 23. 41. 2	4. 28. 0	4. 9. 4		
Tu.	28	11. 29. 38. 0	0. 5. 33. 22	3. 47. 32	3. 23. 40		
W.	29	0. 11. 27. 42	0. 17. 21. 33	2. 57. 43	2. 29. 54		
Th.	30	0. 23. 15. 26	0. 29. 9. 52	2. 0. 29	1. 29. 45		
F.	31	1. 5. 5. 19	1. 11. 2. 13	0. 57. 58	0. 25. 28		

Days of the Week.	Days of the Month.	THE M O O N ' s					
		Age.	Passage	Right Ascension.		Declination.	
			Merid.	Noon.	Midnight.	Noon.	Midnight.
			D.	H. M.	D. M.	D. M.	D. M.
W.	1	28	22. 17	4. 8	9. 22	2. 8 S	0. 35 N
Th.	2	29	22. 57	14. 37	19. 54	3. 18 N	5. 59
F.	3	30	23. 38	25. 15	30. 41	8. 37	11. 12
Sa.	4	1	0	36. 13	41. 54	13. 40	16. 2
Sun.	5	2	0. 22	47. 44	53. 45	18. 15	20. 18
M.	6	3	1. 8	59. 57	66. 20	22. 9	23. 46
Tu.	7	4	1. 58	72. 54	79. 39	25. 7	26. 11
W.	8	5	2. 51	86. 33	93. 35	26. 55	27. 20
Th.	9	6	3. 46	100. 42	107. 52	27. 23	27. 5
F.	10	7	4. 41	115. 2	122. 11	26. 25	25. 22
Sa.	11	8	5. 36	129. 16	136. 15	23. 58	22. 14
Sun.	12	9	6. 29	143. 9	149. 56	20. 10	17. 49
M.	13	10	7. 20	156. 37	163. 12	15. 13	12. 23
Tu.	14	11	8. 10	169. 44	176. 14	9. 21	6. 9 N
W.	15	12	9. 0	182. 43	189. 15	2. 51 N	0. 31 S
Th.	16	13	9. 51	195. 50	202. 31	3. 55 S	7. 17
F.	17	14	10. 44	209. 19	216. 18	10. 34	13. 42
Sa.	18	15	11. 40	223. 27	230. 48	16. 39	19. 20
Sun.	19	16	12. 40	238. 21	246. 4	21. 42	23. 42
M.	20	17	13. 41	253. 56	261. 52	25. 17	26. 27
Tu.	21	18	14. 42	269. 50	277. 44	27. 9	27. 24
W.	22	19	15. 41	285. 31	293. 8	27. 12	26. 36
Th.	23	20	16. 37	300. 30	307. 37	25. 37	24. 18
F.	24	21	17. 27	314. 28	321. 2	22. 41	20. 49
Sa.	25	22	18. 13	327. 20	333. 24	18. 44	16. 29
Sun.	26	23	18. 56	339. 15	344. 56	14. 5	11. 34
M.	27	24	19. 37	350. 27	355. 51	8. 58	6. 19
Tu.	28	25	20. 16	1. 11	6. 27	3. 37 S	0. 54 S
W.	29	26	20. 55	11. 42	16. 58	1. 49 N	4. 31 N
Th.	30	27	21. 36	22. 16	27. 39	7. 11	9. 47
F.	31	28	22. 17	33. 7	38. 44	12. 19	14. 45

Days of the Week.	Days of the Month.	THE MOON'S				Proportional Logarithm.	
		Semidiameter.		Hor. Parallax.			
		Noon.	Midnight.	Noon.	Midnight.	Noon.	Midn.
		M. S.	M. S.	M. S.	M. S.		
W.	1	14. 45	14. 45	54. 9	54. 8	5217	5218
Th.	2	14. 45	14. 45	54. 7	54. 8	5219	5218
F.	3	14. 46	14. 47	54. 10	54. 14	5215	5210
Sa.	4	14. 48	14. 50	54. 19	54. 25	5203	5195
Sun.	5	14. 52	14. 54	54. 32	54. 41	5186	5174
M.	6	14. 57	15. 0	54. 51	55. 2	5161	5146
Tu.	7	15. 3	15. 7	55. 14	55. 27	5130	5114
W.	8	15. 10	15. 14	55. 41	55. 56	5095	5076
Th.	9	15. 19	15. 24	56. 13	56. 31	5054	5031
F.	10	15. 29	15. 34	56. 49	57. 9	5008	4983
Sa.	11	15. 40	15. 46	57. 30	57. 51	4956	4930
Sun.	12	15. 52	15. 58	58. 13	58. 36	4902	4874
M.	13	16. 4	16. 10	58. 58	59. 20	4846	4820
Tu.	14	16. 16	16. 21	59. 41	60. 0	4794	4771
W.	15	16. 26	16. 30	60. 18	60. 33	4750	4732
Th.	16	16. 34	16. 36	60. 46	60. 55	4716	4705
F.	17	16. 37	16. 38	61. 0	61. 1	4699	4698
Sa.	18	16. 37	16. 35	60. 58	60. 51	4702	4710
Sun.	19	16. 32	16. 28	60. 39	60. 24	4724	4742
M.	20	16. 23	16. 17	60. 6	59. 44	4764	4790
Tu.	21	16. 10	16. 3	59. 20	58. 54	4820	4852
W.	22	15. 55	15. 48	58. 26	57. 58	4886	4921
Th.	23	15. 40	15. 33	57. 30	57. 4	4956	4989
F.	24	15. 26	15. 19	56. 38	56. 14	5022	5051
Sa.	25	15. 13	15. 8	55. 51	55. 31	5082	5108
Sun.	26	15. 3	14. 58	55. 13	54. 57	5132	5153
M.	27	14. 55	14. 52	54. 44	54. 34	5170	5183
Tu.	28	14. 50	14. 48	54. 25	54. 19	5195	5203
W.	29	14. 47	14. 47	54. 16	54. 15	5207	5209
Th.	30	14. 47	14. 48	54. 16	54. 18	5207	5205
F.	31	14. 49	14. 51	54. 22	54. 28	5199	5191

Stars Names.	Days	Noon.	III ^h .	VI ^h .	IX ^h .	Midnight.	XV ^h .	XVIII ^h .	XX ^h .
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
Fomalhaut.	19	89. 42. 18	87. 55. 19	86. 8. 35	84. 22. 6	82. 35. 54	80. 49. 59	79. 4. 24	77. 19. 10
	20	75. 34. 16	73. 49. 45	72. 5. 39	70. 21. 58	68. 38. 43	66. 55. 57	65. 13. 40	63. 31. 55
	21	61. 50. 40	60. 9. 59	58. 29. 52	56. 50. 21	55. 11. 27	53. 33. 11	51. 55. 35	50. 18. 43
	22	48. 42. 33	47. 7. 8	45. 32. 32	43. 58. 48	42. 25. 57	40. 54. 3	39. 23. 8	37. 53. 15
	23	36. 24. 26							
α Arietis.	23	98. 13. 31	96. 35. 58	94. 58. 49	93. 22. 3	91. 45. 40	90. 9. 40	88. 34. 4	86. 58. 49
	24	85. 23. 58	83. 49. 29	82. 15. 22	80. 41. 37	79. 8. 14	77. 35. 12	76. 2. 30	74. 30. 9
	25	72. 58. 9	71. 26. 29	69. 55. 8	68. 24. 6	66. 53. 24	65. 23. 0	63. 52. 55	62. 23. 8
	26	60. 53. 38							
	23	- - -	- - -	- - -	120. 10. 11	118. 39. 14	117. 8. 41	115. 38. 31	114. 8. 43
The Sun.	24	112. 39. 19	111. 10. 18	109. 41. 38	108. 13. 19	106. 45. 22	105. 17. 45	103. 50. 28	102. 23. 30
	25	100. 56. 52	99. 30. 32	98. 4. 30	96. 38. 45	95. 13. 18	93. 48. 7	92. 23. 12	90. 58. 31
	26	89. 34. 6	88. 9. 55	86. 45. 56	85. 22. 11	83. 58. 38	82. 35. 18	81. 12. 8	79. 49. 9
	27	78. 26. 20	77. 3. 40	75. 41. 9	74. 18. 46	72. 56. 31	71. 34. 24	70. 12. 23	68. 50. 29
	28	67. 28. 40	66. 6. 56	64. 45. 16	63. 23. 40	62. 2. 8	60. 40. 39	59. 19. 12	57. 57. 46
	29	56. 36. 23	55. 15. 0	53. 53. 38	52. 32. 15	51. 10. 53	49. 49. 30	48. 28. 5	47. 6. 38
	30	45. 45. 10	44. 23. 39	43. 2. 6	41. 40. 29	40. 18. 48			

DISTANCES of MOON's Center from SUN, and from STARS WEST of her.

Stars Names.	Days	Noon.		III ^h .		VI ^h .		IX ^h .		Midnight.		XV ^h .		XVIII ^h .		XXI ^h .	
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
α Aquilæ.	1	69. 28. 5	70. 38. 58	71. 50. 6	73. 1. 30	74. 13. 7	75. 24. 58	76. 37. 1	77. 49. 15	78. 52. 52	80. 10. 10	81. 21. 10	82. 32. 28	83. 43. 10	84. 54. 10	86. 05. 10	87. 16. 10
	2	79. 1. 41	80. 14. 16	81. 27. 0	82. 39. 52	83. 52. 52	85. 5. 58	86. 19. 10	87. 32. 28	88. 45. 49	89. 58. 40	91. 11. 30	92. 24. 20	93. 37. 10	94. 50. 0	96. 02. 50	97. 15. 40
	3	88. 45. 49	89. 58. 40	91. 11. 30	92. 24. 20	93. 37. 10	94. 50. 0	96. 02. 50	97. 15. 40	98. 28. 30	99. 41. 20	100. 54. 10	102. 07. 0	103. 20. 0	104. 33. 0	105. 46. 0	106. 59. 0
The Sun.	8	39. 13. 42	40. 40. 13	42. 6. 56	43. 33. 50	45. 0. 55	46. 28. 12	47. 55. 42	49. 23. 24	50. 50. 10	52. 17. 0	53. 44. 10	55. 11. 0	56. 38. 10	58. 05. 10	59. 32. 10	60. 59. 10
	9	50. 51. 19	52. 19. 27	53. 47. 49	55. 16. 24	56. 45. 13	58. 14. 16	59. 43. 33	61. 13. 5	62. 42. 52	64. 12. 54	65. 43. 12	67. 13. 46	68. 44. 36	70. 15. 43	71. 47. 6	73. 18. 47
	10	62. 42. 52	64. 12. 54	65. 43. 12	67. 13. 46	68. 44. 36	70. 15. 43	71. 47. 6	73. 18. 47	74. 50. 44	76. 22. 58	77. 55. 31	79. 28. 21	81. 1. 30	82. 34. 57	84. 8. 43	85. 42. 49
	11	74. 50. 44	76. 22. 58	77. 55. 31	79. 28. 21	81. 1. 30	82. 34. 57	84. 8. 43	85. 42. 49	87. 17. 13	88. 51. 57	90. 27. 1	92. 2. 25	93. 38. 9	95. 14. 12	96. 50. 35	98. 27. 18
	12	87. 17. 13	88. 51. 57	90. 27. 1	92. 2. 25	93. 38. 9	95. 14. 12	96. 50. 35	98. 27. 18	100. 4. 21	101. 41. 45	103. 19. 28	104. 57. 32	106. 35. 56	108. 14. 40	109. 53. 44	111. 33. 7
	13	100. 4. 21	101. 41. 45	103. 19. 28	104. 57. 32	106. 35. 56	108. 14. 40	109. 53. 44	111. 33. 7	113. 12. 50	114. 52. 53	116. 33. 15	118. 13. 56	119. 54. 57	121. 35. 0	123. 15. 10	124. 55. 20
	14	113. 12. 50	114. 52. 53	116. 33. 15	118. 13. 56	119. 54. 57	121. 35. 0	123. 15. 10	124. 55. 20	126. 35. 10	128. 15. 10	129. 55. 16	131. 35. 23	133. 15. 33	134. 55. 43	136. 35. 53	138. 16. 0
Pollux.	12	28. 23. 14	30. 4. 57	31. 47. 1	33. 29. 25	35. 12. 10	36. 55. 16	38. 38. 42	40. 22. 29	41. 5. 10	43. 28. 10	45. 11. 16	46. 54. 23	48. 37. 29	50. 20. 35	52. 3. 41	54. 16. 47
	13	42. 6. 36	43. 51. 5	45. 35. 54	47. 21. 3	49. 6. 33	50. 52. 23	52. 38. 34	54. 25. 5	56. 11. 10	57. 56. 20	59. 41. 30	61. 26. 40	63. 11. 50	64. 57. 0	66. 42. 10	68. 27. 20
	14	56. 11. 55	57. 56. 20	59. 41. 30	61. 26. 40	63. 11. 50	64. 57. 0	66. 42. 10	68. 27. 20	70. 12. 30	71. 57. 40	73. 42. 50	75. 28. 0	77. 13. 10	78. 58. 20	80. 43. 30	82. 28. 40
Regulus.	14	20. 15. 18	21. 59. 46	23. 44. 53	25. 30. 36	27. 16. 54	29. 3. 43	30. 51. 2	32. 38. 47	34. 25. 10	36. 11. 30	37. 57. 40	39. 44. 0	41. 30. 10	43. 16. 20	45. 0. 30	46. 46. 40
	15	34. 26. 59	36. 15. 32	38. 4. 26	39. 53. 40	41. 43. 15	43. 33. 8	45. 23. 16	47. 13. 41	49. 4. 10	50. 54. 20	52. 44. 30	54. 34. 40	56. 24. 50	58. 15. 0	60. 5. 10	62. 35. 20
	16	49. 4. 21	50. 55. 15	52. 46. 20	54. 37. 37	56. 29. 5	58. 20. 43	60. 12. 28	62. 4. 20	64. 35. 10	66. 26. 0	68. 16. 50	70. 7. 0	71. 57. 10	73. 47. 20	75. 37. 30	77. 27. 40
	17	63. 56. 20	65. 48. 24	67. 40. 33	69. 32. 44	71. 24. 58	73. 17. 18	75. 9. 27	77. 0. 37	78. 51. 47	80. 43. 57	82. 36. 0	84. 28. 10	86. 20. 20	88. 12. 30	90. 4. 40	92. 36. 50
Spica ♀	17	- - -	- - -	- - -	- - -	17. 37. 18	19. 27. 0	21. 17. 4	23. 7. 26	24. 58. 3	26. 48. 53	28. 39. 49	30. 30. 50	32. 21. 55	34. 12. 55	36. 3. 55	38. 14. 55
	18	24. 58. 3	26. 48. 53	28. 39. 49	30. 30. 50	32. 21. 55	34. 12. 55	36. 3. 55	38. 14. 55	40. 6. 0	42. 17. 0	44. 28. 0	46. 39. 0	48. 50. 0	50. 41. 0	52. 52. 0	54. 43. 0

Stars Names.	Days	Noon.		III ^h .		VI ^h .		IX ^h .		Midnight.		XV ^h .		XVIII ^h .		XXI ^h .	
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
Spica μ	19	39. 45. 22	41. 35. 56	43. 26. 18	45. 16. 29	47. 6. 28	48. 56. 13	50. 45. 41	52. 34. 54	53. 21. 55	54. 12. 55	55. 34. 12. 55	56. 3. 49	57. 36. 3	58. 28. 39. 49	59. 30. 30. 50	60. 37. 54. 38
	20	54. 23. 50	56. 12. 28	58. 0. 46	59. 48. 45	61. 36. 24	63. 23. 42	65. 10. 37	66. 57. 10	68. 43. 20	70. 30. 50	72. 17. 50	74. 5. 38	76. 53. 3	78. 42. 12	80. 31. 1	82. 20. 5
	21	68. 43. 20	70. 21. 51	72. 10. 52	73. 57. 29	75. 46. 58	77. 36. 24	79. 26. 12	81. 16. 2	83. 6. 2	85. 10. 22	87. 0. 37	88. 50. 5	90. 40. 31	92. 30. 6	94. 20. 17	96. 10. 13
Antares.	21	22. 50. 19	24. 35. 46	26. 20. 52	28. 5. 38	29. 50. 2	31. 34. 5	33. 17. 44	35. 1. 1	36. 43. 54	38. 26. 22	40. 8. 26	41. 50. 6	43. 31. 21	45. 12. 11	47. 0. 37	48. 32. 39
	22	36. 43. 54	38. 26. 22	40. 8. 26	41. 50. 6	43. 31. 21	45. 12. 11	47. 0. 37	48. 32. 39	50. 12. 16	51. 51. 28	53. 30. 16	55. 8. 40	56. 46. 40	58. 24. 17	60. 1. 31	61. 38. 22
	23	50. 12. 16	51. 51. 28	53. 30. 16	55. 8. 40	56. 46. 40	58. 24. 17	60. 1. 31	61. 38. 22	63. 14. 51	64. 50. 57	66. 26. 42	68. 2. 5	69. 37. 8	71. 11. 50	72. 46. 14	74. 20. 17
	24	63. 14. 51	64. 50. 57	66. 26. 42	68. 2. 5	69. 37. 8	71. 11. 50	72. 46. 14	74. 20. 17	71. 11. 50	72. 46. 14	74. 20. 17	76. 6. 2	77. 27. 28	79. 0. 37	80. 33. 28	82. 2. 5
	25	75. 54. 2	77. 27. 28	79. 0. 37	80. 33. 28	82. 2. 5	83. 38. 20	85. 10. 22	86. 42. 10	84. 17. 37	85. 10. 22	86. 42. 10	88. 13. 42	89. 45. 0	91. 16. 5	92. 46. 58	94. 17. 37
	26	88. 13. 42	89. 45. 0	91. 16. 5	92. 46. 58	94. 17. 37	95. 48. 5	97. 18. 22	98. 48. 29	106. 16. 42	108. 1. 12	110. 11. 22	112. 1. 12	114. 1. 12	116. 1. 12	118. 1. 12	120. 1. 12
α Aquilæ.	27	100. 18. 25	101. 48. 12	103. 17. 50	104. 47. 20	106. 16. 42	108. 1. 12	110. 11. 22	112. 1. 12	114. 1. 12	116. 1. 12	118. 1. 12	120. 1. 12	122. 1. 12	124. 1. 12	126. 1. 12	128. 1. 12
	28	66. 49. 45	68. 0. 10	69. 10. 52	70. 21. 51	71. 33. 6	72. 44. 34	73. 56. 15	75. 8. 8	76. 20. 14	77. 32. 30	78. 44. 55	79. 57. 29	81. 10. 13	82. 23. 5	83. 36. 3	84. 49. 8
	29	76. 20. 14	77. 32. 30	78. 44. 55	79. 57. 29	81. 10. 13	82. 23. 5	83. 36. 3	84. 49. 8	86. 1. 12	87. 13. 42	88. 26. 17	89. 38. 20	90. 50. 36	92. 2. 5	93. 14. 51	94. 26. 17
	30	86. 2. 19	87. 13. 42	88. 26. 17	89. 38. 20	90. 50. 36	92. 2. 5	93. 14. 51	94. 26. 17	95. 38. 20	96. 50. 36	98. 2. 5	99. 14. 51	100. 26. 17	101. 38. 20	102. 50. 36	103. 62. 51
Fomalhaut.	30	54. 17. 17	55. 40. 54	57. 4. 44	58. 28. 47	59. 53. 3	61. 17. 32	62. 42. 12	64. 7. 5	65. 17. 32	66. 42. 12	67. 17. 32	68. 42. 12	69. 17. 32	70. 42. 12	71. 17. 32	72. 42. 12
	31	65. 32. 9	66. 57. 24	68. 22. 51	69. 48. 28	71. 14. 17	72. 40. 18	74. 6. 28	75. 32. 49	76. 58. 19	78. 23. 50	79. 49. 21	81. 24. 52	82. 50. 23	84. 25. 54	85. 51. 25	87. 26. 56
	J. 1	76. 59. 20	78. 34. 51	80. 10. 22	81. 35. 53	83. 11. 24	84. 36. 55	86. 12. 26	87. 37. 57	89. 13. 28	90. 38. 59	92. 14. 30	93. 39. 61	95. 14. 31	96. 39. 62	98. 14. 32	99. 39. 63

The SATELLITES of JUPITER

are *not visible* this Month,

JUPITER being *too near* the SUN.

Days of the Week.	Days of the Month.	Sundays, Holidays, Terms, &c.	Phases of the MOON.	
			D. H. M.	
Sa.	1	Nicomede.	● New Moon	3. 3. 5
Sun.	2	2d Sunday after Trinity.	☾ First Quarter	10. 11. 28
M.	3	In 15 days of H. Tr. 3 r.	○ Full Moon	17. 4. 5
Tu.	4	K. Geo. III. born 1738.	☾ Last Quarter	24. 15. 14
W.	5	Pr. Ern. Aug. b. Boniface.	Other Phenomena.	
Th.	6		D. H. M.	
F.	7		6. 12. 57	☾ 2 ad ↓ ☽
Sa.	8		8. 16. 19	☾ n ☽
			11. 17. 0	☾ γ ☽
			12. 6. 32	☾ θ ☽
			13. 13. 38	☾ λ ☽
			14. 3. 4	☾ α ☽
			14. 23. 57	☾ x ☽
			15. 7. 53	☾ δ ☽
			16. - -	☽ ½ diff. Lat. 59'
			16. 15. 6	☾ θ Ophiuchi.
			17. 22. 47	☾ φ ☽
			18. 2. 34	☾ σ ☽
			18. 6. 48	☾ τ ☽
			20. - -	☽ ¼, diff. Lat. 23'
			20. - -	☽ ¼, * 42' South.
			20. 21. 50	☾ ε ☽
			21. 0. 3	☾ enters ☽
			22. 23. 31	☾ 1 ad ↓ ☽
			23. 0. 24	☾ 2 ad ↓ ☽
			23. 0. 32	☾ 3 ad ↓ ☽
Sun.	9	3d Sunday after Trinity.		
M.	10	In 3 weeks of H. Tr. 4 r.		
Tu.	11	St. Barnabas.		
W.	12	Trinity Term ends.		
Th.	13			
F.	14			
Sa.	15			
Sun.	16	4th Sunday after Trinity.		
M.	17	St. Alban.		
Tu.	18			
W.	19			
Th.	20	Tr. of Edw. K. W. Sax.		
F.	21			
Sa.	22			
Sun.	23	5th Sunday after Trinity.		
M.	24	Nativity of St. John Bap.		
Tu.	25			
W.	26			
Th.	27			
F.	28			
Sa.	29	St. Peter.		
Sun.	30	6th Sunday after Trinity.		

Days of the Week.	Days of the Month.	THE S U N 's			Equation of Time.	Diff.
		Longitude.	R ^t . Ascen. <i>in Time.</i>	Declin. <i>North.</i>		
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	S.
Sa.	1	2. 10. 53. 30	4. 37. 14, 3	22. 6. 9	2. 36, 3	9, 3
Sun.	2	2. 11. 50. 58	4. 41. 20, 1	22. 14. 3	2. 27, 0	9, 7
M.	3	2. 12. 48. 25	4. 45. 26, 4	22. 21. 33	2. 17, 3	10, 0
Tu.	4	2. 13. 45. 51	4. 49. 33, 0	22. 28. 40	2. 7, 3	10, 4
W.	5	2. 14. 43. 16	4. 53. 39, 9	22. 35. 23	1. 56, 9	10, 7
Th.	6	2. 15. 40. 40	4. 57. 47, 2	22. 41. 43	1. 46, 2	10, 9
F.	7	2. 16. 38. 3	5. 1. 54, 7	22. 47. 39	1. 35, 3	11, 2
Sa.	8	2. 17. 35. 25	5. 6. 2, 6	22. 53. 11	1. 24, 1	11, 5
Sun.	9	2. 18. 32. 46	5. 10. 10, 7	22. 58. 19	1. 12, 6	11, 8
M.	10	2. 19. 30. 6	5. 14. 19, 0	23. 3. 2	1. 0, 8	11, 9
Tu.	11	2. 20. 27. 25	5. 18. 27, 5	23. 7. 21	0. 48, 9	12, 1
W.	12	2. 21. 24. 43	5. 22. 36, 2	23. 11. 16	0. 36, 8	12, 3
Th.	13	2. 22. 22. 0	5. 26. 45, 0	23. 14. 45	0. 24, 5	12, 4
F.	14	2. 23. 19. 16	5. 30. 54, 0	23. 17. 51	0. 12, 1	12, 5
Sa.	15	2. 24. 16. 31	5. 35. 3, 1	23. 20. 32	Add 0, 4	12, 6
Sun.	16	2. 25. 13. 46	5. 39. 12, 4	23. 22. 49	0. 13, 0	12, 8
M.	17	2. 26. 11. 0	5. 43. 21, 7	23. 24. 40	0. 25, 8	12, 8
Tu.	18	2. 27. 8. 14	5. 47. 31, 1	23. 26. 7	0. 38, 6	12, 8
W.	19	2. 28. 5. 27	5. 51. 40, 5	23. 27. 9	0. 51, 4	12, 9
Th.	20	2. 29. 2. 40	5. 55. 50, 0	23. 27. 46	1. 4, 3	12, 9
F.	21	2. 29. 59. 52	5. 59. 59, 4	23. 27. 59	1. 17, 2	12, 8
Sa.	22	3. 0. 57. 5	6. 4. 8, 9	23. 27. 46	1. 30, 0	12, 9
Sun.	23	3. 1. 54. 18	6. 8. 18, 3	23. 27. 9	1. 42, 9	12, 8
M.	24	3. 2. 51. 30	6. 12. 27, 8	23. 26. 7	1. 55, 7	12, 7
Tu.	25	3. 3. 48. 43	6. 16. 37, 1	23. 24. 40	2. 8, 4	12, 7
W.	26	3. 4. 45. 56	6. 20. 46, 3	23. 22. 49	2. 21, 1	12, 5
Th.	27	3. 5. 43. 9	6. 24. 55, 4	23. 20. 33	2. 33, 6	12, 4
F.	28	3. 6. 40. 23	6. 29. 4, 4	23. 17. 52	2. 46, 0	12, 2
Sa.	29	3. 7. 37. 36	6. 33. 13, 2	23. 14. 47	2. 58, 2	12, 0
Sun.	30	3. 8. 34. 50	6. 37. 21, 9	23. 11. 18	3. 10, 2	

Days	Time of ☉'s Semidiam. pass ^g Merid.	T H E S U N ' s			Place of the ☉'s Node.
	M. S.	Semi- diameter	Hourly Motion.	Logar. Distance.	S. D. M.
1	1. 8, 3	15. 48, 9	2. 23, 6	0. 006344	1. 14. 33
7	1. 8, 6	15. 48, 2	2. 23, 4	0. 006662	1. 14. 14
13	1. 8, 7	15. 47, 6	2. 23, 3	0. 006894	1. 13. 55
19	1. 8, 8	15. 47, 2	2. 23, 1	0. 007072	1. 13. 35
25	1. 8, 8	15. 47, 0	2. 23, 0	0. 007199	1. 13. 16

The ECLIPSES of JUPITER'S SATELLITES

are *not visible* this Month,

JUPITER being *too near* the SUN.

THE PLANETS							
Days	Heliocentric		Geocentric		Declin.	Passage	
	Long.	Lat.	Long.	Lat.		Merid.	
	S. D. M.	D. M.	S. D. M.	D. M.			D. M.
♿ Gr. Elong. 3 ^d . <i>MERCURY</i> .							
1	9. 28. 11	6. 40 S	1. 17. 7	3. 40 S	13. 27 N	22. 25	
4	10. 8. 2	6. 56	1. 19. 56	3. 28	14. 24	22. 24	
7	10. 18. 34	7. 0	1. 23. 15	3. 9	15. 33	22. 26	
10	10. 29. 56	6. 48	1. 27. 3	2. 46	16. 50	22. 29	
13	11. 12. 19	6. 17	2. 1. 19	2. 18	18. 12	22. 34	
16	11. 25. 52	5. 23	2. 6. 3	1. 46	19. 36	22. 42	
19	0. 10. 43	4. 3	2. 11. 12	1. 12	20. 57	22. 51	
22	0. 26. 56	2. 18	2. 16. 47	0. 37	22. 12	23. 3	
25	1. 14. 25	0. 11 S	2. 22. 45	0. 3 S	23. 13	23. 17	
28	2. 2. 52	2. 3 N	2. 29. 0	0. 29 N	23. 57	23. 32	
30	2. 15. 29	3. 28	3. 2. 17	0. 49	24. 15	23. 42	
♀ <i>VENUS</i> .							
1	5. 14. 19	3. 23 N	3. 17. 18	2. 1 N	24. 21 N	2. 39	
7	5. 24. 3	3. 21	3. 24. 18	2. 4	23. 19	2. 45	
13	6. 3. 46	3. 12	4. 1. 16	2. 3	21. 55	2. 49	
19	6. 13. 28	2. 59	4. 8. 9	1. 59	20. 10	2. 53	
25	6. 23. 8	2. 40	4. 14. 59	1. 52	18. 8	2. 56	
♂ <i>MARS</i> .							
1	4. 6. 1	1. 49 N	3. 15. 31	1. 15 N	23. 49 N	2. 31	
7	4. 8. 41	1. 49	3. 19. 18	1. 15	23. 19	2. 22	
13	4. 11. 21	1. 50	3. 23. 4	1. 15	22. 43	2. 14	
19	4. 14. 0	1. 51	3. 26. 50	1. 14	22. 2	2. 5	
25	4. 16. 39	1. 51	4. 0. 36	1. 14	21. 15	1. 56	
♃ <i>JUPITER</i> .							
1	2. 9. 10	0. 40 S	2. 9. 27	0. 33 S	21. 21 N	23. 51	
7	2. 9. 41	0. 39	2. 10. 51	0. 32	21. 34	23. 32	
13	2. 10. 13	0. 38	2. 12. 14	0. 32	21. 46	23. 13	
19	2. 10. 44	0. 38	2. 13. 37	0. 32	21. 57	22. 54	
25	2. 11. 16	0. 37	2. 14. 59	0. 31	22. 6	22. 35	
♄ <i>SATURN</i> .							
1	3. 27. 53	0. 16 N	3. 23. 32	0. 14 N	21. 39 N	3. 4	
7	3. 28. 6	0. 16	3. 24. 11	0. 15	21. 33	2. 42	
13	3. 28. 20	0. 17	3. 24. 52	0. 15	21. 26	2. 20	
19	3. 28. 33	0. 17	3. 25. 35	0. 16	21. 19	1. 58	
25	3. 28. 46	0. 18	3. 26. 19	0. 16	21. 11	1. 37	
♅ <i>GEORGIAN</i> . ☐ 9 ^d . 0 ^h .							
1	5. 21. 38	0. 46 N	5. 18. 28	0. 46 N	5. 10 N	6. 40	
11	5. 21. 46	0. 46	5. 18. 34	0. 46	5. 14	6. 0	
21	5. 21. 54	0. 46	5. 18. 45	0. 45	5. 9	5. 19	

Days of the Week.	Days of the Month.	THE MOON'S			
		Longitude.		Latitude.	
		Noon.	Midnight.	Noon.	Midnight.
		S. D. M. S.	S. D. M. S.	D. M. S.	D. M. S.
Sa.	1	1. 17. 0. 57	1. 23. 1. 50	0. 7. 28 N	0. 40. 29 N
Sun.	2	1. 29. 5. 13	2. 5. 11. 18	1. 13. 14	1. 45. 22
M.	3	2. 11. 20. 18	2. 17. 32. 25	2. 16. 30	2. 46. 15
Tu.	4	2. 23. 47. 44	3. 0. 6. 24	3. 14. 13	3. 40. 3
W.	5	3. 6. 28. 25	3. 12. 53. 54	4. 3. 22	4. 23. 48
Th.	6	3. 19. 22. 48	3. 25. 55. 10	4. 41. 3	4. 54. 47
F.	7	4. 2. 30. 59	4. 9. 10. 15	5. 4. 43	5. 10. 40
Sa.	8	4. 15. 52. 54	4. 22. 38. 58	5. 12. 25	5. 9. 52
Sun.	9	4. 29. 28. 24	5. 6. 21. 8	5. 2. 55	4. 51. 36
M.	10	5. 13. 17. 9	5. 20. 16. 20	4. 35. 55	4. 16. 3
Tu.	11	5. 27. 18. 36	6. 4. 23. 49	3. 52. 10	3. 24. 36
W.	12	6. 11. 31. 49	6. 18. 42. 19	2. 53. 39	2. 19. 48
Th.	13	6. 25. 55. 2	7. 3. 9. 35	1. 43. 34	1. 5. 31 N
F.	14	7. 10. 25. 30	7. 17. 42. 13	0. 26. 18 N	0. 13. 22 S
Sa.	15	7. 24. 59. 9	8. 2. 15. 38	0. 52. 50 S	1. 31. 20
Sun.	16	8. 9. 30. 51	8. 16. 44. 9	2. 8. 12	2. 42. 48
M.	17	8. 23. 54. 46	9. 1. 1. 57	3. 14. 33	3. 42. 59
Tu.	18	9. 8. 5. 4	9. 15. 3. 32	4. 7. 41	4. 28. 23
W.	19	9. 21. 56. 52	9. 28. 44. 47	4. 44. 54	4. 57. 7
Th.	20	10. 5. 27. 0	10. 12. 3. 24	5. 5. 4	5. 8. 48
F.	21	10. 18. 34. 3	10. 24. 59. 4	5. 8. 27	5. 4. 13
Sa.	22	11. 1. 18. 43	11. 7. 33. 23	4. 56. 17	4. 44. 56
Sun.	23	11. 13. 43. 28	11. 19. 49. 27	4. 30. 23	4. 12. 53
M.	24	11. 25. 51. 55	0. 1. 51. 27	3. 52. 42	3. 30. 8
Tu.	25	0. 7. 48. 40	0. 13. 44. 16	3. 5. 26	2. 38. 49
W.	26	0. 19. 38. 51	0. 25. 33. 5	2. 10. 35	1. 40. 59
Th.	27	1. 1. 27. 36	1. 7. 23. 2	1. 10. 18	0. 38. 47 S
F.	28	1. 13. 19. 58	1. 19. 18. 59	0. 6. 45 S	0. 25. 30 N
Sa.	29	1. 25. 20. 34	2. 1. 25. 11	0. 57. 41 N	1. 29. 25
Sun.	30	2. 7. 33. 15	2. 13. 45. 3	2. 0. 23	2. 30. 12

Days of the Week.	Days of the Month.	THE MOON'S					
		Age.	Passage Merid.	Right Ascension.		Declination.	
				Noon.	Midnight.	Noon.	Midnight.
			D. H. M.	D. M.	D. M.	D. M.	D. M.
Sa.	1	29	23. 3	44. 30	50. 27	17. 3 N	19. 12 N
Sun.	2	30	23. 52	56. 35	62. 55	21. 10	22. 55
M.	3	1	0	69. 27	76. 10	24. 26	25. 39
Tu.	4	2	0. 45	83. 4	90. 7	26. 33	27. 8
W.	5	3	1. 39	97. 16	104. 30	27. 22	27. 13
Th.	6	4	2. 35	111. 44	118. 56	26. 42	25. 49
F.	7	5	3. 30	126. 4	133. 6	24. 34	22. 58
Sa.	8	6	4. 23	140. 0	146. 47	21. 3	18. 51
Sun.	9	7	5. 14	153. 26	159. 58	16. 23	13. 42
M.	10	8	6. 3	166. 24	172. 45	10. 49	7. 47
Tu.	11	9	6. 51	179. 5	185. 23	4. 37 N	1. 23 N
W.	12	10	7. 40	191. 44	198. 9	1. 54 S	5. 11 S
Th.	13	11	8. 30	204. 40	211. 19	8. 25	11. 33
F.	14	12	9. 23	218. 9	225. 10	14. 33	17. 21
Sa.	15	13	10. 19	232. 24	239. 51	19. 53	22. 8
Sun.	16	14	11. 18	247. 29	255. 17	24. 1	25. 30
M.	17	15	12. 20	263. 12	271. 9	26. 34	27. 11
Tu.	18	16	13. 20	279. 5	286. 55	27. 20	27. 4
W.	19	17	14. 19	294. 34	302. 0	26. 22	25. 17
Th.	20	18	15. 12	309. 10	316. 4	23. 51	22. 8
F.	21	19	16. 1	322. 42	329. 3	20. 10	17. 59
Sa.	22	20	16. 46	335. 10	341. 4	15. 38	13. 9
Sun.	23	21	17. 27	346. 46	352. 19	10. 34	7. 54
M.	24	22	18. 7	357. 45	3. 6	5. 11 S	2. 28 S
Tu.	25	23	18. 47	8. 24	13. 40	0. 16 N	2. 59 N
W.	26	24	19. 27	18. 58	24. 18	5. 41	8. 19
Th.	27	25	20. 8	29. 43	35. 15	10. 54	13. 23
F.	28	26	20. 53	40. 54	46. 44	15. 45	17. 59
Sa.	29	27	21. 40	52. 45	58. 58	20. 4	21. 56
Sun.	30	28	22. 31	65. 24	72. 2	23. 34	24. 58

Days of the Week.	Days of the Month.	THE MOON'S				Proportional Logarithm.	
		Semidiameter.		Hor. Parallax.			
		Noon.	Midnight.	Noon.	Midnight.	Noon.	Midn.
		M. S.	M. S.	M. S.	M. S.		
Sa.	1	14.53	14.55	54.36	54.45	5181	5169
Sun.	2	14.58	15. 1	54.55	55. 7	5155	5140
M.	3	15. 4	15. 8	55.19	55.32	5124	5107
Tu.	4	15.12	15.16	55.46	56. 0	5089	5071
W.	5	15.20	15.24	56.15	56.30	5051	5032
Th.	6	15.28	15.32	56.46	57. 1	5012	4992
F.	7	15.37	15.41	57.17	57.33	4972	4952
Sa.	8	15.45	15.50	57.49	58. 5	4932	4912
Sun.	9	15.54	15.58	58.20	58.36	4893	4874
M.	10	16. 2	16. 6	58.51	59. 6	4855	4837
Tu.	11	16.10	16.14	59.20	59.33	4820	4804
W.	12	16.17	16.20	59.45	59.55	4789	4777
Th.	13	16.22	16.23	60. 3	60. 9	4768	4760
F.	14	16.25	16.25	60.13	60.14	4755	4754
Sa.	15	16.24	16.23	60.11	60. 6	4758	4764
Sun.	16	16.20	16.17	59.58	59.46	4773	4788
M.	17	16.13	16. 8	59.32	59.14	4805	4827
Tu.	18	16. 3	15.57	58.54	58.33	4852	4877
W.	19	15.51	15.44	58.10	57.46	4906	4936
Th.	20	15.38	15.31	57.22	56.58	4966	4996
F.	21	15.25	15.19	56.34	56.12	5027	5055
Sa.	22	15.13	15. 8	55.51	55.32	5082	5107
Sun.	23	15. 3	14.59	55.15	55. 0	5129	5149
M.	24	14.56	14.53	54.47	54.37	5166	5179
Tu.	25	14.51	14.49	54.29	54.24	5190	5197
W.	26	14.49	14.49	54.22	54.22	5199	5199
Th.	27	14.49	14.51	54.24	54.29	5197	5190
F.	28	14.53	14.55	54.36	54.44	5181	5170
Sa.	29	14.58	15. 1	54.54	55. 6	5157	5141
Sun.	30	15. 5	15. 9	55.20	55.35	5123	5103

DISTANCES of MOON'S Center from SUN, and from STARS EAST of her.

Stars Names.	Days	Noon.		III ^h .		VI ^h .		IX ^h .		Midnight.		XV ^h .		XVIII ^h .		XXI ^h .	
		D. M. S.		D. M. S.		D. M. S.		D. M. S.		D. M. S.		D. M. S.		D. M. S.		D. M. S.	
Regulus.	5	50.38.32		49.3.7		47.27.33		45.51.48		44.15.54		42.39.51		41.3.39		39.27.18	
	6	37.50.49		36.14.11		34.37.26		33.0.35		31.23.37		29.46.35		28.9.28		26.32.19	
	7	24.55.6															
Spica ν	7	78.45.50		77.6.59		75.27.56		73.48.41		72.9.15		70.29.37		68.49.46		67.9.44	
	8	65.29.29		63.49.2		62.8.22		60.27.30		58.46.26		57.5.10		55.23.42		53.42.2	
	9	52.0.10		50.18.6		48.35.51		46.53.24		45.10.45		43.27.55		41.44.54		40.1.43	
	10	38.18.21		36.34.48		34.51.8		33.7.19		31.23.22		29.39.19		27.55.11		26.10.57	
Antares.	11	24.26.40															
	11	70.5.44		68.19.52		66.33.47		64.47.29		63.1.0		61.14.19		59.27.26		57.40.23	
	12	55.53.8		54.5.43		52.18.8		50.30.23		48.42.28		46.54.24		45.6.12		43.17.52	
α Aquilæ.	13	41.29.24		39.40.49		37.52.8		36.3.23		34.14.32							
	13	- - -		- - -		- - -		- - -		85.47.4		84.16.57		82.46.51		81.16.49	
	14	79.46.55		78.17.9		76.47.38		75.18.21		73.49.21		72.20.40		70.52.24		69.24.36	
Fomalhaut.	15	67.57.16		66.30.30		65.4.20		63.38.49		62.14.1							
	15	- - -		- - -		- - -		- - -		88.18.25		86.33.25		84.48.32		83.3.47	
	16	81.19.11		79.34.47		77.50.33		76.6.35		74.22.49		72.39.19		70.56.8		69.13.15	
	17	67.30.41		65.48.29		64.6.40		62.25.16		60.44.17		59.3.44		57.23.41		55.44.9	
	18	54.5.10		52.26.43		50.48.54		49.11.45		47.35.15		45.59.27		44.24.28		42.50.20	
	19	41.17.2		39.44.44		38.13.25		36.43.10		35.14.3							

Stars Names.	Days	Noon.		III ^h .		VI ^h .		IX ^h .		Midnight.		XV ^h .		XVIII ^h .		XXI ^h .	
		D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.
α Arietis.	19	-	-	-	-	-	-	-	-	96. 51. 1	95. 12. 4	93. 33. 29	91. 55. 16				
	20	90. 17. 25	88. 39. 55	87. 2. 47	85. 26. 1	83. 49. 37	82. 13. 34	80. 37. 53	79. 2. 34								
	21	77. 27. 37	75. 53. 2	74. 18. 49	72. 44. 58	71. 11. 28	69. 38. 19	68. 5. 31	66. 33. 5								
	22	65. 0. 59	63. 29. 14	61. 57. 49	60. 26. 44	58. 56. 0	57. 25. 36	55. 55. 32	54. 25. 49								
	23	52. 56. 25	51. 27. 21	49. 58. 37	48. 30. 14	47. 2. 11	45. 34. 28	44. 7. 6	42. 40. 6								
	24	41. 13. 27	39. 47. 11	38. 21. 19	36. 55. 50	35. 30. 46											
The Sun.	22	119. 31. 7	118. 4. 41	116. 38. 32	115. 12. 40	113. 47. 5	112. 21. 46	110. 56. 42	109. 31. 53								
	23	108. 7. 20	106. 43. 1	105. 18. 55	103. 55. 2	102. 31. 23	101. 7. 55	99. 44. 38	98. 21. 32								
	24	96. 58. 37	95. 35. 52	94. 13. 16	92. 50. 49	91. 28. 30	90. 6. 19	88. 44. 14	87. 22. 16								
	25	86. 0. 24	84. 38. 37	83. 16. 54	81. 55. 15	80. 33. 40	79. 12. 8	77. 50. 39	76. 29. 11								
	26	75. 7. 45	73. 46. 20	72. 24. 54	71. 3. 28	69. 42. 1	68. 20. 33	66. 59. 2	65. 37. 29								
	27	64. 15. 54	62. 54. 15	61. 32. 32	60. 10. 44	58. 48. 52	57. 26. 55	56. 4. 51	54. 42. 42								
	28	53. 20. 26	51. 58. 2	50. 35. 31	49. 12. 52	47. 50. 5	46. 27. 10	45. 4. 7	43. 40. 55								
	29	42. 17. 34	40. 54. 4	39. 30. 24													

DISTANCES of MOON'S Center from SUN, and from STARS WEST of her.

Stars Names.	Days	Noon.		III ^h .		VI ^h .		IX ^h .		Midnight.		XV ^h .		XVIII ^h .		XXI ^h .	
		D. M. S.	S.	D. M. S.	S.	D. M. S.	S.	D. M. S.	S.	D. M. S.	S.	D. M. S.	S.	D. M. S.	S.	D. M. S.	S.
The Sun.	6	-	-	-	-	-	-	-	-	40. 0. 57	41. 31. 54	43. 3. 3	44. 34. 25				
	7	46. 6. 0	47. 37. 47	49. 9. 48	50. 42. 0	52. 14. 26	53. 47. 4	55. 19. 55	56. 52. 59								
	8	58. 26. 15	59. 59. 44	61. 33. 27	63. 7. 22	64. 41. 30	66. 15. 52	67. 50. 26	69. 25. 14								
	9	71. 0. 15	72. 35. 29	74. 10. 56	75. 46. 36	77. 22. 29	78. 58. 36	80. 34. 56	82. 11. 29								
	10	83. 48. 15	85. 25. 14	87. 2. 27	88. 39. 52	90. 17. 31	91. 55. 23	93. 33. 27	95. 11. 44								
	11	96. 50. 14	98. 28. 57	100. 7. 51	101. 46. 58	103. 26. 17	105. 5. 48	106. 45. 31	108. 25. 24								
Regulus.	12	110. 5. 29	111. 45. 45	113. 26. 11	115. 6. 46	116. 47. 32	118. 28. 26	120. 9. 30									
	10	-	-	-	-	23. 31. 13	25. 14. 22	26. 57. 56	28. 41. 54								
	11	30. 26. 14	32. 10. 56	33. 55. 58	35. 41. 18	37. 26. 58	39. 12. 53	40. 59. 3	42. 45. 28								
	12	44. 32. 8	46. 19. 1	48. 6. 7	49. 53. 26	51. 40. 57	53. 28. 39	55. 16. 32	57. 4. 34								
	13	58. 52. 47	60. 41. 9	62. 29. 39	64. 18. 17	66. 7. 3	67. 55. 55	69. 44. 53	71. 33. 56								
	14	73. 23. 3															
Spica μ	14	19. 32. 10	21. 19. 26	23. 7. 1	24. 54. 52	26. 42. 58	28. 31. 17	30. 19. 44	32. 8. 19								
	15	33. 57. 2	35. 45. 45	37. 34. 30	39. 23. 14	41. 11. 59	43. 0. 38	44. 49. 14	46. 37. 46								
	16	48. 26. 13	50. 14. 33	52. 2. 44	53. 50. 47	55. 38. 41	57. 26. 24	59. 13. 55	61. 1. 14								
	17	62. 48. 21	64. 35. 14	66. 21. 52	68. 8. 14	69. 54. 21											
Antares.	17	-	-	-	-	24. 1. 6	25. 46. 39	27. 31. 57	29. 17. 2								
	18	31. 1. 51	32. 46. 24	34. 30. 40	36. 14. 38	37. 58. 19	39. 41. 39	41. 24. 39	43. 7. 19								
	19	44. 49. 39	46. 31. 39	48. 13. 18	49. 54. 36	51. 35. 33	53. 16. 8	54. 56. 20	56. 36. 12								

Stars Names.	Days	Noon.		III ^h .		VI ^h .		IX ^h .		Midnight.		XV ^h .		XVIII ^h .		XXI ^h .	
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	
Antares.	20	58.15.41	59.54.48	61.33.34	63.11.58	64.50.0	66.27.41	68.5.0	69.41.59								
	21	71.18.36	72.54.53	74.30.49	76.6.26	77.41.42	79.16.39	80.51.16	82.25.36								
	22	83.59.36	85.33.18	87.6.44	88.39.52	90.12.43	91.45.18	93.17.37	94.49.41								
	23	96.21.30	97.53.5	99.24.26	100.55.34	102.26.29	103.57.12	105.27.43	106.58.3								
	24	108.28.13															
α Aquilæ.	24	63.47.23	64.57.46	66.8.26	67.19.23	68.30.35	69.42.2	70.53.41	72.5.33								
	25	73.17.37	74.29.51	75.42.14	76.54.45	78.7.26	79.20.13	80.33.8	81.46.7								
	26	82.59.12															
Fomalhaut.	26	50.56.59	52.20.1	53.43.15	55.6.42	56.30.21	57.54.12	59.18.15	60.42.29								
	27	62.6.54	63.31.30	64.56.17	66.21.15	67.46.24	69.11.43	70.37.13	72.2.54								
	28	73.28.46	74.54.49	76.21.3	77.47.29	79.14.5	80.40.53	82.7.52	83.35.2								
	29	85.2.24															
α Arietis.	29	22.16.28	23.36.37	24.57.59	26.20.29	27.44.1	29.8.34	30.33.57	32.0.9								
	30	33.27.8	34.54.40	36.22.46	37.51.27	39.20.42	40.50.26	42.20.39	43.51.16								
	J.1	45.22.17															

The SATELLITES of JUPITER

are *not visible* this Month,

JUPITER being *too near* the SUN.

Days of the Week.	Days of the Month.	Sundays, Holidays, Terms, &c.	Phases of the MOON.
			D. H. M.
			● New Moon ----- 2. 15. 27
			☾ First Quarter ----- 9. 16. 12
			○ Full Moon ----- 16. 13. 17
			☾ Last Quarter ----- 24. 8. 36
			Other Phenomena.
			D. H. M.
			5. - - ♀ α Ω, * 59 $\frac{3}{4}$ South.
			5. 21. 52 ☾ η Ω
			8. 22. 28 ☾ γ η
			9. 12. 10 ☾ θ η
			10. 19. 54 ☾ λ η
			11. 9. 41 ☾ α =
			12. 7. 8 ☾ x =
			12. 15. 17 ☾ δ η
			13. 23. 17 ☾ θ Ophiuchi.
			15. 7. 34 ☾ φ †
			15. 11. 23 ☾ σ †
			15. 15. 40 ☾ τ †
			18. 6. 48 ☾ ε υ
			19. - - ♀ x Ω, * 42 $\frac{1}{2}$ North.
			20. 7. 59 ☾ ι ad ↓ ~
			20. 8. 51 ☾ ζ ad ↓ ~
			20. 8. 59 ☾ 3 ad ↓ ~
			22. - - ☿ ♂ diff. Lat. 15'
			23. 10. 53 ☾ enters Ω
			26. - - ♀ τ Ω, * 40' South.
			27. - - ♀ η diff. Lat. 45'
			27. - - ☿ α Ω, * 21' South.
			28. 12. 57 $\frac{1}{2}$ E. 1258 * 3 $\frac{1}{2}$ N. D's C.
M.	1	[Commence.	
Tu.	2	Visita. of B. V. M. Camb.	
W.	3		
Th.	4	Transl. of St. Martin.	
F.	5	Cambridge Term ends.	
Sa.	6		
Sun.	7	7th Sunday after Trinity.	
M.	8	Oxford Act.	
Tu.	9		
W.	10		
Th.	11		
F.	12		
Sa.	13	Oxford Term ends.	
Sun.	14	8th Sunday after Trinity.	
M.	15	Swithin.	
Tu.	16		
W.	17		
Th.	18		
F.	19		
Sa.	20	Margaret.	
Sun.	21	9th Sunday after Trinity.	
M.	22	Magdalen.	
Tu.	23		
W.	24		
Th.	25	St. James.	
F.	26	St. Anne.	
Sa.	27		
Sun.	28	10th Sunday after Trinity.	
M.	29		
Tu.	30		
W.	31		

Days of the Week.	Days of the Month.	THE S U N's			Equation of Time.	Diff.
		Longitude.	R ^t . Ascen. <i>in Time.</i>	Declin. <i>North.</i>		
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	S.
M.	1	3. 9. 32. 4	6. 41. 30, 3	23. 7. 24	3. 22, 1	11, 5
Tu.	2	3. 10. 29. 18	6. 45. 38, 4	23. 3. 5	3. 33, 6	11, 3
W.	3	3. 11. 26. 31	6. 49. 46, 3	22. 58. 22	3. 44, 9	11, 0
Th.	4	3. 12. 23. 45	6. 53. 53, 9	22. 53. 16	3. 55, 9	10, 7
F.	5	3. 13. 20. 59	6. 58. 1, 1	22. 47. 45	4. 6, 6	10, 3
Sa.	6	3. 14. 18. 13	7. 2. 8, 0	22. 41. 50	4. 16, 9	9, 9
Sun.	7	3. 15. 15. 27	7. 6. 14, 5	22. 35. 32	4. 26, 8	9, 6
M.	8	3. 16. 12. 40	7. 10. 20, 7	22. 28. 51	4. 36, 4	9, 1
Tu.	9	3. 17. 9. 54	7. 14. 26, 4	22. 21. 46	4. 45, 5	8, 7
W.	10	3. 18. 7. 7	7. 18. 31, 7	22. 14. 19	4. 54, 2	8, 2
Th.	11	3. 19. 4. 20	7. 22. 36, 5	22. 6. 28	5. 2, 4	7, 8
F.	12	3. 20. 1. 33	7. 26. 40, 8	21. 58. 15	5. 10, 2	7, 3
Sa.	13	3. 20. 58. 47	7. 30. 44, 7	21. 49. 39	5. 17, 5	6, 8
Sun.	14	3. 21. 56. 0	7. 34. 48, 1	21. 40. 40	5. 24, 3	6, 3
M.	15	3. 22. 53. 13	7. 38. 51, 0	21. 31. 19	5. 30, 6	5, 8
Tu.	16	3. 23. 50. 27	7. 42. 53, 4	21. 21. 37	5. 36, 4	5, 3
W.	17	3. 24. 47. 41	7. 46. 55, 2	21. 11. 32	5. 41, 7	4, 8
Th.	18	3. 25. 44. 56	7. 50. 56, 5	21. 1. 7	5. 46, 5	4, 2
F.	19	3. 26. 42. 11	7. 54. 57, 3	20. 50. 19	5. 50, 7	3, 7
Sa.	20	3. 27. 39. 27	7. 58. 57, 6	20. 39. 11	5. 54, 4	3, 2
Sun.	21	3. 28. 36. 44	8. 2. 57, 3	20. 27. 42	5. 57, 6	2, 6
M.	22	3. 29. 34. 1	8. 6. 56, 5	20. 15. 52	6. 2, 2	2, 1
Tu.	23	4. 0. 31. 20	8. 10. 55, 2	20. 3. 42	6. 2, 3	1, 5
W.	24	4. 1. 28. 39	8. 14. 53, 2	19. 51. 12	6. 3, 8	0, 9
Th.	25	4. 2. 26. 0	8. 18. 50, 7	19. 38. 21	6. 4, 7	0, 4
F.	26	4. 3. 23. 22	8. 22. 47, 7	19. 25. 11	6. 5, 1	0, 2
Sa.	27	4. 4. 20. 45	8. 26. 44, 1	19. 11. 41	6. 4, 9	0, 7
Sun.	28	4. 5. 18. 9	8. 30. 39, 9	18. 57. 53	6. 4, 2	1, 3
M.	29	4. 6. 15. 34	8. 34. 35, 1	18. 43. 45	6. 2, 9	1, 9
Tu.	30	4. 7. 13. 0	8. 38. 29, 7	18. 29. 19	6. 1, 0	2, 6
W.	31	4. 8. 10. 27	8. 42. 23, 8	18. 14. 35	5. 58, 4	

Days	Time of ☉'s Semidiam. pass ^s Merid.	THE SUN'S			Place of the ☉'s Node
	M. S.	Semi- diameter M. S.	Hourly Motion M. S.	Logar. Distance.	S. D. M.
1	1. 8, 7	15. 46, 9	2. 23, 0	0.007251	1. 12. 57
7	1. 8, 4	15. 47, 0	2. 23, 0	0.007209	1. 12. 38
13	1. 8, 0	15. 47, 2	2. 23, 1	0.007079	1. 12. 19
19	1. 7, 6	15. 47, 6	2. 23, 2	0.006890	1. 12. 0
25	1. 7, 1	15. 48, 2	2. 23, 4	0.006656	1. 11. 41

ECLIPSES of the SATELLITES of JUPITER.

I. Satellite.		II. Satellite.		III. Satellite.	
<i>Immersion.</i>		<i>Immersion.</i>			
Days.	H. M. S.	Days.	H. M. S.	Days.	H. M. S.
1	13. 50. 46	2	16. 55. 46	3	5. 49. 54 Im.
3	8. 19. 3	6	6. 12. 32	3	8. 14. 57 E.
5	2. 47. 20	9	19. 29. 25	10	9. 48. 24 Im.
6	21. 15. 38	13	8. 46. 21	10	12. 14. 34 E.
8	15. 43. 58	16	22. 3. 27	17	13. 47. 12 Im.
10	10. 12. 17	20	11. 20. 43	17	16. 14. 31 E.
12	4. 40. 35	24	0. 38. 3	24	17. 46. 22 Im.
13	23. 9. 0	*27	13. 55. 33	24	20. 14. 48 E.
15	17. 37. 23	31	3. 13. 12	31	21. 45. 53 Im.
17	12. 5. 47				
19	6. 34. 12				
21	1. 2. 42				
22	19. 31. 9				
*24	13. 59. 40			IV. Satellite. Conj.	
26	8. 28. 12				
28	2. 56. 46			1	15. 37 Sup.
29	21. 25. 18			10	0. 26 Inf.
31	15. 53. 55			18	12. 9 Sup.
				26	20. 48 Inf.

THE PLANETS							
Days	Heliocentric		Geocentric		Declin.	Passage	
	Long.	Lat.	Long.	Lat.		Merid.	
	S. D. M.	D. M.	S. D. M.	D. M.			D. M.
♿ MERCURY. Sup. ☿ 4 ^d . 8 ^h . 3 ^m .							
1	2. 21. 48	4. 7 N	3. 5. 27	0. 58 N	24. 19 N	23. 48	
4	3. 10. 32	5. 43	3. 11. 58	1. 21	24. 16	0. 4	
7	3. 28. 28	6. 41	3. 18. 25	1. 37	23. 48	0. 15	
10	4. 15. 10	6. 59	3. 24. 43	1. 46	22. 57	0. 30	
13	5. 0. 26	6. 47	4. 0. 48	1. 50	21. 47	0. 43	
16	5. 14. 17	6. 10	4. 6. 38	1. 47	20. 22	0. 55	
19	5. 26. 53	5. 18	4. 12. 11	1. 38	18. 44	1. 6	
22	6. 8. 22	4. 17	4. 17. 29	1. 25	16. 58	1. 15	
25	6. 18. 57	3. 12	4. 22. 31	1. 8	15. 5	1. 22	
28	6. 28. 49	2. 5	4. 27. 18	0. 47	13. 10	1. 29	
31	7. 8. 7	0. 58	5. 1. 48	0. 23	11. 12	1. 34	
♀ VENUS. ☿ 22 ^d . 5 ^h . 4 ^m .							
1	7. 2. 47	2. 16 N	4. 21. 44	1. 40 N	15. 51 N	2. 57	
7	7. 12. 24	1. 49	4. 28. 23	1. 24	13. 22	2. 58	
13	7. 22. 0	1. 19	5. 4. 57	1. 4	10. 42	2. 58	
19	8. 1. 33	0. 47	5. 11. 23	0. 40	7. 55	2. 57	
25	8. 11. 6	0. 13	5. 17. 41	0. 12	5. 4	2. 56	
♂ MARS. ☿ 22 ^d . 5 ^h . 4 ^m .							
1	4. 19. 17	1. 51 N	4. 4. 22	1. 13 N	20. 22 N	1. 46	
7	4. 21. 55	1. 51	4. 8. 9	1. 12	19. 25	1. 37	
13	4. 24. 32	1. 50	4. 11. 55	1. 11	18. 23	1. 28	
19	4. 27. 10	1. 50	4. 15. 42	1. 10	17. 16	1. 19	
25	4. 29. 47	1. 49	4. 19. 29	1. 9	16. 5	1. 10	
♃ JUPITER. ☿ 22 ^d . 5 ^h . 4 ^m .							
1	2. 11. 47	0. 36 S	2. 16. 19	0. 31 S	22. 15 N	22. 16	
7	2. 12. 19	0. 36	2. 17. 39	0. 30	22. 23	21. 57	
13	2. 12. 50	0. 35	2. 18. 56	0. 30	22. 31	21. 38	
19	2. 13. 21	0. 34	2. 20. 12	0. 30	22. 37	21. 20	
25	2. 13. 54	0. 34	2. 21. 26	0. 30	22. 42	21. 1	
♄ SATURN. ☿ 22 ^d . 5 ^h . 4 ^m .							
1	3. 29. 0	0. 18 N	3. 27. 3	0. 17 N	21. 3 N	1. 15	
7	3. 29. 13	0. 19	3. 27. 49	0. 17	20. 54	0. 54	
13	3. 29. 26	0. 20	3. 28. 35	0. 18	20. 46	0. 32	
19	3. 29. 40	0. 20	3. 29. 22	0. 18	20. 36	0. 11	
25	3. 29. 53	0. 21	4. 0. 8	0. 19	20. 27	23. 47	
♅ GEORGIAN. ☿ 22 ^d . 5 ^h . 4 ^m .							
1	5. 22. 2	0. 46 N	5. 19. 2	0. 45 N	5. 2 N	4. 39	
11	5. 22. 10	0. 46	5. 19. 23	0. 44	4. 54	3. 59	
21	5. 22. 18	0. 46	5. 19. 48	0. 44	4. 43	3. 20	

Days of the Week.	Days of the Month.	THE MOON'S							
		Longitude.				Latitude.			
		Noon.		Midnight.		Noon.		Midnight.	
		S. D. M. S.		S. D. M. S.		D. M. S.		D. M. S.	
M.	1	2. 20. 0. 51		2. 26. 20. 51		2. 58. 29 N		3. 24. 50 N	
Tu.	2	3. 2. 45. 8		3. 9. 13. 39		3. 48. 52		4. 10. 13	
W.	3	3. 15. 46. 23		3. 22. 23. 12		4. 28. 29		4. 43. 20	
Th.	4	3. 29. 3. 54		4. 5. 48. 12		4. 54. 28		5. 1. 37	
F.	5	4. 12. 35. 47		4. 19. 26. 21		5. 4. 34		5. 3. 11	
Sa.	6	4. 26. 19. 33		5. 3. 15. 3		4. 57. 26		4. 47. 17	
Sun.	7	5. 10. 12. 31		5. 17. 11. 39		4. 32. 51		4. 14. 18	
M.	8	5. 24. 12. 11		6. 1. 13. 54		3. 51. 51		3. 25. 49	
Tu.	9	6. 8. 16. 36		6. 15. 20. 6		2. 56. 35		2. 24. 35	
W.	10	6. 22. 24. 16		6. 29. 28. 59		1. 50. 19		1. 14. 18 N	
Th.	11	7. 6. 34. 4		7. 13. 39. 23		0. 37. 6 N		0. 0. 40 S	
F.	12	7. 20. 44. 43		7. 27. 49. 50		0. 38. 25 S		1. 15. 31	
Sa.	13	8. 4. 54. 27		8. 11. 58. 13		1. 51. 21		2. 25. 22	
Sun.	14	8. 19. 0. 45		8. 26. 1. 35		2. 57. 1		3. 25. 48	
M.	15	9. 3. 0. 17		9. 9. 56. 21		3. 51. 19		4. 13. 13	
Tu.	16	9. 16. 49. 18		9. 23. 38. 42		4. 31. 12		4. 45. 8	
W.	17	10. 0. 24. 8		10. 7. 5. 16		4. 54. 54		5. 0. 30	
Th.	18	10. 13. 41. 50		10. 20. 13. 41		5. 1. 59		4. 59. 28	
F.	19	10. 26. 40. 41		11. 3. 2. 55		4. 53. 8		4. 43. 12	
Sa.	20	11. 9. 20. 28		11. 15. 33. 33		4. 29. 54		4. 13. 32	
Sun.	21	11. 21. 42. 30		11. 27. 47. 41		3. 54. 21		3. 32. 41	
M.	22	0. 3. 49. 35		0. 9. 48. 44		3. 8. 48		2. 42. 59	
Tu.	23	0. 15. 45. 40		0. 21. 41. 4		2. 15. 32		1. 46. 41	
W.	24	0. 27. 35. 32		1. 3. 29. 46		1. 16. 47		0. 46. 2 S	
Th.	25	1. 9. 24. 26		1. 15. 20. 15		0. 14. 46 S		0. 16. 45 N	
F.	26	1. 21. 17. 52		1. 27. 17. 57		0. 48. 14 N		1. 19. 22	
Sa.	27	2. 3. 21. 8		2. 9. 27. 58		1. 49. 51		2. 19. 21	
Sun.	28	2. 15. 38. 59		2. 21. 54. 39		2. 47. 31		3. 13. 59	
M.	29	2. 28. 15. 18		3. 4. 41. 13		3. 38. 23		4. 0. 19	
Tu.	30	3. 11. 12. 33		3. 17. 49. 20		4. 19. 24		4. 35. 17	
W.	31	3. 24. 31. 28		4. 1. 18. 47		4. 47. 34		4. 55. 58	

THE MOON'S							
Days of the Week.	Days of the Month.	Age.	Passage	Right Ascension.		Declination.	
			Merid.	Noon.	Midnight.	Noon.	Midnight.
			D. H. M.	D. M.	D. M.	D. M.	D. M.
M.	1	29	23. 26	78. 53	85. 55	26. 3 N	26. 50 N
Tu.	2	1	0	93. 6	100. 22	27. 15	27. 18
W.	3	2	0. 22	107. 42	115. 2	26. 59	26. 16
Th.	4	3	1. 18	122. 20	129. 32	25. 10	23. 43
F.	5	4	2. 13	136. 36	143. 33	21. 55	19. 48
Sa.	6	5	3. 5	150. 20	156. 59	17. 25	14. 47
Sun.	7	6	3. 55	163. 29	169. 54	11. 57	8. 58
M.	8	7	4. 44	176. 13	182. 30	5. 51 N	2. 39 N
Tu.	9	8	5. 31	188. 46	195. 3	0. 35 S	3. 49 S
W.	10	9	6. 20	201. 24	207. 51	7. 1	10. 9
Th.	11	10	7. 11	214. 26	221. 11	13. 8	15. 58
F.	12	11	8. 4	228. 7	235. 15	18. 35	20. 56
Sa.	13	12	9. 1	242. 35	250. 6	22. 58	24. 39
Sun.	14	13	10. 1	257. 47	265. 33	25. 57	26. 50
M.	15	14	11. 1	273. 22	281. 10	27. 17	27. 18
Tu.	16	15	12. 0	288. 52	296. 25	26. 53	26. 4
W.	17	16	12. 56	303. 46	310. 52	24. 53	23. 22
Th.	18	17	13. 47	317. 43	324. 19	21. 33	19. 29
F.	19	18	14. 34	330. 39	336. 45	17. 13	14. 48
Sa.	20	19	15. 18	342. 39	348. 22	12. 14	9. 35
Sun.	21	20	15. 59	353. 56	359. 23	6. 53	4. 8 S
M.	22	21	16. 39	4. 46	10. 5	1. 22 S	1. 24 N
Tu.	23	22	17. 19	15. 23	20. 43	4. 7 N	6. 49
W.	24	23	17. 59	26. 5	31. 32	9. 26	11. 59
Th.	25	24	18. 42	37. 5	42. 47	14. 25	16. 43
F.	26	25	19. 28	48. 38	54. 41	18. 53	20. 52
Sa.	27	26	20. 18	60. 56	67. 24	22. 39	24. 12
Sun.	28	27	21. 11	74. 5	80. 58	25. 28	26. 27
M.	29	28	22. 8	88. 2	95. 16	27. 6	27. 23
Tu.	30	29	23. 5	102. 36	109. 59	27. 18	26. 50
W.	31	30	0	117. 23	124. 45	25. 57	24. 42

Days of the Week.	Days of the Month.	THE MOON'S				Proportional Logarithm.	
		Semidiameter.		Hor. Parallax.			
		Noon.	Midnight.	Noon.	Midnight.		
		M. S.	M. S.	M. S.	M. S.	Noon.	Midn.
M.	1	15. 13	15. 18	55. 51	56. 8	5082	5060
Tu.	2	15. 22	15. 27	56. 25	56. 42	5038	5017
W.	3	15. 32	15. 36	56. 59	57. 15	4995	4975
Th.	4	15. 40	15. 44	57. 31	57. 46	4955	4936
F.	5	15. 49	15. 52	58. 1	58. 14	4917	4901
Sa.	6	15. 56	15. 59	58. 27	58. 39	4885	4870
Sun.	7	16. 2	16. 4	58. 49	58. 58	4858	4846
M.	8	16. 6	16. 8	59. 6	59. 13	4837	4828
Tu.	9	16. 10	16. 11	59. 19	59. 24	4821	4815
W.	10	16. 12	16. 13	59. 28	59. 30	4810	4808
Th.	11	16. 13	16. 13	59. 31	59. 31	4806	4806
F.	12	16. 13	16. 11	59. 29	59. 25	4809	4813
Sa.	13	16. 10	16. 8	59. 20	59. 13	4820	4828
Sun.	14	16. 6	16. 3	59. 4	58. 53	4839	4853
M.	15	15. 59	15. 55	58. 40	58. 26	4869	4886
Tu.	16	15. 51	15. 46	58. 10	57. 53	4906	4927
W.	17	15. 41	15. 36	57. 34	57. 15	4951	4975
Th.	18	15. 31	15. 25	56. 55	56. 35	5000	5026
F.	19	15. 20	15. 15	56. 16	55. 57	5050	5075
Sa.	20	15. 10	15. 6	55. 40	55. 23	5097	5119
Sun.	21	15. 1	14. 58	55. 8	54. 55	5138	5155
M.	22	14. 55	14. 52	54. 44	54. 35	5170	5182
Tu.	23	14. 51	14. 50	54. 29	54. 25	5190	5195
W.	24	14. 49	14. 50	54. 24	54. 25	5197	5195
Th.	25	14. 51	14. 52	54. 28	54. 34	5191	5183
F.	26	14. 55	14. 58	54. 43	54. 54	5171	5157
Sa.	27	15. 1	15. 5	55. 7	55. 22	5140	5120
Sun.	28	15. 10	15. 15	55. 39	55. 58	5098	5073
M.	29	15. 20	15. 26	56. 18	56. 38	5048	5022
Tu.	30	15. 32	15. 38	56. 59	57. 21	4995	4967
W.	31	15. 43	15. 49	57. 42	58. 2	4941	4916

DISTANCES of MOON'S Center from SUN, and from STARS EAST of her.

Stars Names.	Days	Noon.		III ^h .		VI ^h .		IX ^h .		Midnight.		XV ^h .		XVIII ^h .		XXI ^h .	
		D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.
Spica. μ	4	82.	11. 16	80.	31. 7	78.	50. 46	77.	10. 12	75.	29. 27	73.	48. 30	72.	7. 22	70.	26. 3
	5	68.	44. 33	67.	2. 52	65.	21. 1	63.	38. 59	61.	56. 48	60.	14. 27	58.	31. 57	56.	49. 18
	6	55.	6. 30	53.	23. 34	51.	40. 30	49.	57. 19	48.	14. 1	46.	30. 36	44.	47. 4	43.	3. 27
	7	41.	19. 44	39.	35. 56	37.	52. 3	36.	8. 7	34.	24. 7	32.	40. 6	30.	56. 4	29.	12. 0
Antares.	8	73.	10. 39	71.	25. 29	69.	40. 13	67.	54. 52	66.	9. 26	64.	23. 55	62.	38. 19	60.	52. 39
	9	59.	6. 54	57.	21. 5	55.	35. 12	53.	49. 15	52.	3. 15	50.	17. 11	48.	31. 5	46.	44. 55
	10	44.	58. 43	43.	12. 28	41.	26. 12	39.	39. 54	37.	53. 35	36.	7. 15	34.	20. 54	32.	34. 34
	11	30.	48. 13														
α Aquilæ.	11	83.	2. 56	81.	35. 4	80.	7. 20	78.	39. 47	77.	12. 26	75.	45. 20	74.	18. 32	72.	52. 4
	12	71.	25. 57	70.	0. 14	68.	34. 59	67.	10. 15	65.	46. 2	64.	22. 26	62.	59. 29	61.	37. 14
	13	60.	15. 43														
Fomalhaut.	13	85.	43. 15	84.	1. 13	82.	19. 17	80.	37. 27	78.	55. 46	77.	14. 13	75.	32. 51	73.	51. 39
	14	72.	10. 39	70.	29. 51	68.	49. 19	67.	9. 2	65.	29. 0	63.	49. 15	62.	9. 50	60.	30. 46
	15	58.	52. 2	57.	13. 41	55.	35. 45	53.	58. 16	52.	21. 15	50.	44. 43	49.	8. 45	47.	33. 24
	16	45.	58. 38	44.	24. 35	42.	51. 15	41.	18. 42	39.	46. 57						
α Arietis.	16	-	-	-	-	-	-	-	-	101.	50. 13	100.	10. 35	98.	31. 13	96.	52. 5
	17	95.	13. 13	93.	34. 37	91.	56. 17	90.	18. 13	88.	40. 26	87.	2. 56	85.	25. 44	83.	48. 49

Stars Names.	Days	Noon.	III ^h .	VI ^h .	IX ^h .	Midnight.	XV ^h .	XVIII ^h .	XXI ^h .
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
α Arietis.	18	82. 12. 12	80. 35. 53	78. 59. 53	77. 24. 11	75. 48. 47	74. 13. 43	72. 38. 58	71. 4. 32
	19	69. 30. 25	67. 56. 37	66. 23. 9	64. 50. 0	63. 17. 11	61. 44. 41	60. 12. 31	58. 40. 41
	20	57. 9. 10	55. 37. 59	54. 7. 9	52. 36. 40	51. 6. 31	49. 36. 42	48. 7. 14	46. 38. 8
	21	45. 9. 24	43. 41. 1	42. 13. 3	40. 45. 28	39. 18. 18	37. 51. 34	36. 25. 16	34. 59. 26
	22	33. 34. 3							
Aldebaran.	22	62. 59. 39	61. 30. 32	60. 1. 36	58. 32. 50	57. 4. 14	55. 35. 48	54. 7. 30	52. 39. 22
	23	51. 11. 22	49. 43. 30	48. 15. 45	46. 48. 8	45. 20. 39	43. 53. 17	42. 26. 3	40. 58. 56
	24	39. 31. 57	38. 5. 6	36. 38. 22	35. 11. 46	33. 45. 18			
The Sun.	21	- - -	- - -	- - -	- - -	121. 13. 41	119. 50. 30	118. 27. 29	117. 4. 38
	22	115. 41. 56	114. 19. 23	112. 56. 58	111. 34. 41	110. 12. 31	108. 50. 29	107. 28. 32	106. 6. 42
	23	104. 44. 57	103. 23. 17	102. 1. 41	100. 40. 9	99. 18. 40	97. 57. 14	96. 35. 49	95. 14. 25
	24	93. 53. 3	92. 31. 42	91. 10. 20	89. 48. 57	88. 27. 34	87. 6. 9	85. 44. 40	84. 23. 9
	25	83. 1. 34	81. 39. 55	80. 18. 11	78. 56. 22	77. 34. 27	76. 12. 26	74. 50. 17	73. 28. 1
	26	72. 5. 37	70. 43. 4	69. 20. 22	67. 57. 31	66. 34. 30	65. 11. 18	63. 47. 55	62. 24. 21
	27	61. 0. 36	59. 36. 38	58. 12. 27	56. 48. 3	55. 23. 26	53. 58. 35	52. 33. 30	51. 8. 11
	28	49. 42. 38	48. 16. 48	46. 50. 44	45. 24. 26	43. 57. 54	42. 31. 6	41. 4. 2	39. 36. 42
	29	38. 9. 8							

DISTANCES of MOON's Center from SUN, and from STARS WEST of her.

Stars Names.	Days	Noon.		III ^h .		VI ^h .		IX ^h .		Midnight.		XV ^h .		XVIII ^h .		XXI ^h .	
		D. M. S.		D. M. S.		D. M. S.		D. M. S.		D. M. S.		D. M. S.		D. M. S.		D. M. S.	
The Sun.	5	-	-	-	-	-	-	-	-	35. 55. 20	37. 30. 6	39. 5. 4	40. 40. 13				
	6	42. 15. 35	43. 51. 9	45. 26. 52	47. 2. 46	48. 38. 50	50. 15. 4	51. 51. 26	53. 27. 58	61. 32. 42	63. 10. 1	64. 47. 27	66. 25. 0				
	7	55. 4. 39	56. 41. 28	58. 18. 25	59. 55. 30	61. 32. 42	63. 10. 1	64. 47. 27	66. 25. 0	74. 34. 19	76. 12. 28	77. 50. 42	79. 29. 1				
	8	68. 2. 40	69. 40. 26	71. 18. 18	72. 56. 15	74. 34. 19	76. 12. 28	77. 50. 42	79. 29. 1	87. 41. 42	89. 20. 27	90. 59. 15	92. 38. 6				
	9	81. 7. 25	82. 45. 53	84. 24. 25	86. 3. 2	87. 41. 42	89. 20. 27	90. 59. 15	92. 38. 6	100. 53. 6	102. 32. 13	104. 11. 20	105. 50. 30				
	10	94. 17. 1	95. 55. 59	97. 34. 59	99. 14. 1	100. 53. 6	102. 32. 13	104. 11. 20	105. 50. 30	114. 6. 26	115. 45. 38	117. 24. 48	119. 3. 56				
Regulus.	11	107. 29. 40	109. 8. 51	110. 48. 3	112. 27. 14	114. 6. 26	115. 45. 38	117. 24. 48	119. 3. 56								
	12	120. 43. 2															
	9	-	-	-	-	-	-	-	-	48. 19. 7	50. 4. 47	51. 50. 32	53. 36. 21				
Spica η	10	55. 22. 16	57. 8. 15	58. 54. 17	60. 40. 23	62. 26. 33	64. 12. 46	65. 59. 1	67. 45. 18								
	11	69. 31. 38	71. 17. 59	73. 4. 22	74. 50. 46	76. 37. 11											
	12	-	-	-	-	-	-	-	-	22. 42. 2	24. 27. 13	26. 12. 33	27. 58. 2				
	13	29. 43. 38	31. 29. 21	33. 15. 7	35. 0. 57	36. 46. 51	38. 32. 44	40. 18. 37	42. 4. 29								
	14	43. 50. 21	45. 36. 10	47. 21. 56	49. 7. 39	50. 53. 18	52. 38. 52	54. 24. 21	56. 9. 44								
Antares.	15	57. 55. 1	59. 40. 11	61. 25. 13	63. 10. 7	64. 54. 53											
	16	-	-	-	-	-	-	-	-	19. 2. 51	20. 46. 55	22. 30. 55	24. 14. 51				
	17	25. 58. 40	27. 42. 23	29. 25. 57	31. 9. 22	32. 52. 38	34. 35. 41	36. 18. 32	38. 1. 11								
	18	39. 43. 38	41. 25. 51	43. 7. 50	44. 49. 35	46. 31. 6	48. 12. 21	49. 53. 21	51. 34. 5								

Stars Names.	Days	Noon.	III ^h .	VI ^h .	IX ^h .	Midnight.	XV ^h .	XVIII ^h .	XXI ^h .
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
Antares.	17	53. 14. 33	54. 54. 45	56. 34. 40	58. 14. 19	59. 53. 41	61. 32. 46	63. 11. 33	64. 50. 3
	18	66. 28. 16	68. 6. 12	69. 43. 50	71. 21. 10	72. 58. 13	74. 34. 58	76. 11. 25	77. 47. 35
	19	79. 23. 27	80. 59. 2	82. 34. 21	84. 9. 22	85. 44. 7	87. 18. 35	88. 52. 46	90. 26. 41
	20	92. 0. 20	93. 33. 44	95. 6. 51	96. 39. 44	98. 12. 21	99. 44. 44	101. 16. 54	102. 48. 50
	21	104. 20. 32	105. 52. 1	107. 23. 18	108. 54. 21	110. 25. 13			
α Aquilæ.	21	-	-	-	-	65. 10. 21	66. 21. 50	67. 33. 33	68. 45. 29
	22	69. 57. 37	71. 9. 57	72. 22. 26	73. 35. 5	74. 47. 52	76. 0. 46	77. 13. 45	78. 26. 50
	23	79. 40. 1	80. 53. 16	82. 6. 34	83. 19. 54	84. 33. 17			
Fomalhaut.	23	-	-	-	-	52. 57. 21	54. 20. 43	55. 44. 15	57. 7. 55
	24	58. 31. 45	59. 55. 44	61. 19. 51	62. 44. 7	64. 8. 32	65. 33. 5	66. 57. 46	68. 22. 36
	25	69. 47. 35	71. 12. 42	72. 37. 58	74. 3. 23	75. 28. 57	76. 54. 41	78. 20. 34	79. 46. 38
	26	81. 12. 51	82. 39. 14	84. 5. 49	85. 32. 33	86. 59. 30			
	26	-	-	-	-	23. 55. 32	25. 17. 10	26. 39. 46	28. 3. 18
α Arietis.	27	29. 27. 43	30. 52. 59	32. 18. 58	33. 45. 39	35. 13. 3	36. 40. 58	38. 9. 25	39. 38. 25
	28	41. 7. 58	42. 37. 58	44. 8. 25	45. 39. 21	47. 10. 44	48. 42. 33	50. 14. 47	51. 47. 26
	29	53. 20. 31	54. 53. 59	56. 27. 5*	58. 2. 6	59. 36. 45	61. 11. 48	62. 47. 13	64. 23. 1
	30	65. 59. 11	67. 35. 43	69. 12. 36	70. 49. 50	72. 27. 25			

CONFIGURATIONS of the SATELLITES of JUPITER
at III o'Clock in the *Morning*.

1			.2 .1	○		.4 .3
2	1	●	4 ○		○	.2 3.
3				○	.1 2.	3.
4		4.	2.	1 ○ 3 ○		
5	4.		3.		○	.1 2.○
6	4.		.3 .1	○		2.
7	.4		2. 3	○	1.	
8		.4	.2 .1	○		.3
9			.4	○	1. .2	.3
10	1.○		.4	○	2. 3.	
11	3	●	2.	1. ○		.4
12	2.○		3.	○	.1	.4
13			.3 1.	○	2.	.4
14			.3 2.	○	1.	.4
15			.2 .1	○	.3	4.
16				○	1. .2	.3 4.
17				.1 ○	2. 3. 4.	
18	3	●	2.	1. ○		4.
19			3.	.2 4. ○	.1	
20			.3 4. 1.	○		.2
21	2	●	4. .3	○	.1	
22	4.		.2 .1	○	.3	
23	4.			○	.2 1. .3	
24	.4			.1 ○	2. 3.	
25	1	●	.4 2.	○	3.	
26			.4 3. .2	○	.1	
27			3. 1. .4	○	.2	
28	2	●	.3	○	.1 .4	
29	3	○	.2 1.	○		.4
30				○	.2 1. .3	.4
31			.1	○	2. 3.	.4

Days of the Week.	Days of the Month.	Sundays, Holidays, Terms, &c.	Phases of the MOON.
			D. H. M.
			● New Moon ----- 1. 1. 46
			☾ First Quarter ----- 7. 20. 55
			○ Full Moon ----- 15. 0. 29
			☾ Last Quarter ----- 23. 2. 21
			● New Moon ----- 30. 11. 0
			Other Phenomena.
			D. H. M.
			1. - - ☿ ♄ ♀, * 4' South.
			5. 4. 9 ☾ ♄ ♀
			5. 17. 41 ☾ ♄ ♀
			5. - - ☿ ♄ ♀, * 40' South.
			7. 1. 15 ☾ ♄ ♀
			7. 15. 4 ☾ ♄ ♀
			8. 1. 10 ☾ ♄ ♀
			8. 20. 59 ☾ ♄ ♀
			11. 14. 31 ☾ ♄ ♀
			11. 18. 26 ☾ ♄ ♀
			11. 22. 47 ☾ ♄ ♀
			14. 14. 51 ☾ ♄ ♀
			16. 16. 10 ☾ ♄ ♀
			16. 17. 1 ☾ ♄ ♀
			16. 17. 9 ☾ ♄ ♀
			22. 1. 29 ☾ ♄ ♀
			22. 17. 17 ☾ enters ♄
			24. 22. 14 ☾ 125 8
			27. - - ☿ Stationary.
			27. 12. 56 ☾ 2 ad ↓ ☿
Th.	1	Lammas-Day.	
F.	2		
Sa.	3		
Sun.	4	11th Sunday after Trinity.	
M.	5		
Tu.	6	Transfig. of our Lord.	
W.	7	Name of Jesus.	
Th.	8		
F.	9		
Sa.	10	St. Lawrence.	
Sun.	11	12th Su. aft. Tr. Prs. of	
M.	12	Pr. of Wales b. [Brunf. b.]	
Tu.	13		
W.	14		
Th.	15	Assumption,	
F.	16	Duke of York born.	
Sa.	17		
Sun.	18	13th Sunday after Trinity.	
M.	19		
Tu.	20		
W.	21	Duke of Clarence born.	
Th.	22		
F.	23		
Sa.	24	St. Bartholomew.	
Sun.	25	14th Sunday after Trinity.	
M.	26		
Tu.	27		
W.	28	St. Augustine.	
Th.	29	behead. of St. John Bap.	
F.	30		
Sa.	31		

Days of the Week.	Days of the Month.	THE S U N's			Equation of Time.	Diff.
		Longitude.	R ^t . Ascen.	Declin.		
			<i>in Time.</i>	<i>North.</i>	<i>Add.</i>	
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	S.
Th.	1	4. 9. 7. 55	8. 46. 17. 2	17. 59. 32	5. 55. 3	3. 7
F.	2	4. 10. 5. 24	8. 50. 10. 0	17. 44. 12	5. 51. 6	4. 3
Sa.	3	4. 11. 2. 54	8. 54. 2. 2	17. 28. 35	5. 47. 3	4. 9
Sun.	4	4. 12. 0. 24	8. 57. 53. 8	17. 12. 41	5. 42. 4	5. 6
M.	5	4. 12. 57. 56	9. 1. 44. 8	16. 56. 30	5. 36. 8	6. 2
Tu.	6	4. 13. 55. 28	9. 5. 35. 2	16. 40. 2	5. 30. 6	6. 8
W.	7	4. 14. 53. 1	9. 9. 24. 9	16. 23. 18	5. 23. 8	7. 4
Th.	8	4. 15. 50. 35	9. 13. 14. 1	16. 6. 19	5. 16. 4	7. 9
F.	9	4. 16. 48. 9	9. 17. 2. 6	15. 49. 4	5. 8. 5	8. 6
Sa.	10	4. 17. 45. 45	9. 20. 50. 6	15. 31. 34	4. 59. 9	9. 2
Sun.	11	4. 18. 43. 21	9. 24. 37. 9	15. 13. 49	4. 50. 7	9. 8
M.	12	4. 19. 40. 58	9. 28. 24. 7	14. 55. 50	4. 40. 9	10. 3
Tu.	13	4. 20. 38. 36	9. 32. 10. 9	14. 37. 37	4. 30. 6	10. 9
W.	14	4. 21. 36. 15	9. 35. 56. 5	14. 19. 9	4. 19. 7	11. 4
Th.	15	4. 22. 33. 56	9. 39. 41. 6	14. 0. 28	4. 8. 3	12. 0
F.	16	4. 23. 31. 38	9. 43. 26. 2	13. 41. 33	3. 56. 3	12. 5
Sa.	17	4. 24. 29. 20	9. 47. 10. 2	13. 22. 26	3. 43. 8	12. 9
Sun.	18	4. 25. 27. 5	9. 50. 53. 8	13. 3. 6	3. 30. 9	13. 5
M.	19	4. 26. 24. 51	9. 54. 36. 9	12. 43. 32	3. 17. 4	13. 9
Tu.	20	4. 27. 22. 39	9. 58. 19. 4	12. 23. 47	3. 3. 5	14. 4
W.	21	4. 28. 20. 29	10. 2. 1. 6	12. 3. 50	2. 49. 1	14. 8
Th.	22	4. 29. 18. 20	10. 5. 43. 3	11. 43. 42	2. 34. 3	15. 2
F.	23	5. 0. 16. 13	10. 9. 24. 6	11. 23. 22	2. 19. 1	15. 7
Sa.	24	5. 1. 14. 8	10. 13. 5. 4	11. 2. 51	2. 3. 4	16. 0
Sun.	25	5. 2. 12. 5	10. 16. 45. 9	10. 42. 9	1. 47. 4	16. 4
M.	26	5. 3. 10. 4	10. 20. 26. 0	10. 21. 17	1. 31. 0	16. 8
Tu.	27	5. 4. 8. 5	10. 24. 5. 7	10. 0. 15	1. 14. 2	17. 2
W.	28	5. 5. 6. 7	10. 27. 45. 1	9. 39. 4	0. 57. 0	17. 5
Th.	29	5. 6. 4. 12	10. 31. 24. 1	9. 17. 43	0. 39. 5	17. 8
F.	30	5. 7. 2. 18	10. 35. 2. 8	8. 56. 13	0. 21. 7	18. 1
Sa.	31	5. 8. 0. 26	10. 38. 41. 2	8. 34. 35	0. 3. 6	

Days	Time of ☉'s Semidiam. pass ^s Merid.	THE SUN'S			Place of the ☉'s Node.
	M. S.	Semi- diameter	Hourly Motion.	Logar. Distance.	S. D. M.
1	1. 6, 5	15. 49, 0	2. 23, 6	0. 006286	1. 11. 19
7	1. 6, 0	15. 49, 8	2. 23, 9	0. 005877	1. 11. 0
13	1. 5, 5	15. 50, 9	2. 24, 2	0. 005400	1. 10. 41
19	1. 5, 1	15. 52, 1	2. 24, 6	0. 004885	1. 10. 22
25	1. 4, 7	15. 53, 2	2. 24, 9	0. 004336	1. 10. 3

ECLIPSES of the SATELLITES of JUPITER.

I. Satellite.		II. Satellite.		III. Satellite.	
<i>Immersion.</i>					
Days.	H. M. S.	Days.	H. M. S.	Days.	H. M. S.
2	10. 22. 31	3	16. 30. 55 Im.	1	0. 15. 28 E.
4	4. 51. 9	7	5. 48. 52 Im.	8	1. 45. 50 Im.
5	23. 19. 50	10	19. 6. 55 Im.	8	4. 16. 34 E.
7	17. 48. 33	14	8. 25. 10 Im.	15	5. 46. 7 Im.
9	12. 17. 13	17	21. 43. 29 Im.	15	8. 17. 59 E.
11	6. 45. 57	21	11. 2. 5 Im.	22	9. 46. 50 Im.
13	1. 14. 46	*21	13. 29. 6 E.	22	12. 19. 50 E.
14	19. 43. 30	25	0. 20. 41 Im.	*29	13. 47. 49 Im.
*16	14. 12. 21	25	2. 47. 47 E.	29	16. 21. 59 E.
18	8. 41. 12	*28	13. 39. 26 Im.	IV. Satellite. Conj.	
20	3. 10. 2	*28	16. 6. 38 E.		
21	21. 38. 55				
23	16. 7. 50				
25	10. 36. 43				
27	5. 5. 39				
28	23. 34. 35			4	8. 24 Sup.
30	18. 3. 32			12	16. 51 Inf.
				21	4. 14 Sup.
				*29	12. 24 Inf.

THE PLANETS							
Days	Heliocentric		Geocentric		Declin.	Passage	
	Long.	Lat.	Long.	Lat.		Merid.	
	S. D. M.	D. M.	S. D. M.	D. M.		D. M.	H. M.
♿ Gr. Elong. 14°. <i>MERCURY.</i>							
1	7. 11. 6	0. 36 N	5. 3. 14	0. 15 N	10. 34 N	1. 35	
4	7. 19. 51	0. 29 S	5. 7. 24	0. 12 S	8. 37	1. 37	
7	7. 28. 20	1. 30	5. 11. 15	0. 41	6. 43	1. 40	
10	8. 6. 39	2. 29	5. 14. 48	1. 12	4. 54	1. 42	
13	8. 14. 53	3. 24	5. 17. 59	1. 43	3. 10	1. 41	
16	8. 23. 8	4. 15	5. 20. 48	2. 14	1. 36	1. 39	
19	9. 1. 31	5. 0	5. 23. 7	2. 45	0. 12 N	1. 36	
22	9. 10. 5	5. 41	5. 24. 56	3. 15	0. 58 S	1. 31	
25	9. 18. 59	6. 15	5. 26. 4	3. 42	1. 49	1. 23	
28	9. 28. 17	6. 40	5. 26. 27	4. 4	2. 19	1. 13	
31	10. 8. 9	6. 56	5. 25. 56	4. 18	2. 20	0. 59	
♀ Gr. Elong. 8°. <i>VENUS.</i>							
1	8. 22. 12	0. 26 S	5. 24. 49	0. 25 S	1. 40 N	2. 54	
7	9. 1. 42	0. 59	6. 0. 43	1. 2	1. 14 S	2. 51	
13	9. 11. 11	1. 30	6. 6. 22	1. 42	4. 5	2. 49	
19	9. 20. 40	1. 59	6. 11. 43	2. 25	6. 51	2. 45	
25	10. 0. 9	2. 25	6. 16. 41	3. 11	9. 30	2. 40	
♂ <i>MARS.</i>							
1	5. 2. 51	1. 47 N	4. 23. 54	1. 8 N	14. 38 N	1. 0	
7	5. 5. 28	1. 46	4. 27. 42	1. 7	13. 20	0. 51	
13	5. 8. 5	1. 44	5. 1. 30	1. 6	11. 59	0. 43	
19	5. 10. 43	1. 42	5. 5. 19	1. 4	10. 34	0. 35	
25	5. 13. 20	1. 40	5. 9. 9	1. 3	9. 7	0. 28	
♃ <i>JUPITER.</i>							
1	2. 14. 29	0. 33 S	2. 22. 48	0. 29 S	22. 47 N	20. 40	
7	2. 15. 1	0. 32	2. 23. 56	0. 29	22. 51	20. 22	
13	2. 15. 32	0. 32	2. 25. 0	0. 29	22. 54	20. 4	
19	2. 16. 3	0. 31	2. 26. 1	0. 29	22. 56	19. 46	
25	2. 16. 35	0. 30	2. 26. 58	0. 28	22. 58	19. 27	
♄ <i>SATURN.</i>							
1	4. 0. 8	0. 21 N	4. 1. 2	0. 19 N	20. 16 N	23. 24	
7	4. 0. 22	0. 22	4. 1. 48	0. 20	20. 6	23. 4	
13	4. 0. 35	0. 23	4. 2. 34	0. 20	19. 57	22. 44	
19	4. 0. 48	0. 23	4. 3. 19	0. 21	19. 47	22. 25	
25	4. 1. 2	0. 24	4. 4. 2	0. 22	19. 37	22. 6	
♅ <i>GEORGIAN.</i>							
1	5. 22. 26	0. 46 N	5. 20. 20	0. 44 N	4. 30 N	2. 39	
11	5. 22. 34	0. 46	5. 20. 52	0. 44	4. 18	2. 3	
21	5. 22. 42	0. 46	5. 21. 27	0. 43	4. 3	1. 27	

Days of the Week.	Days of the Month.	THE MOON'S					
		Longitude.			Latitude.		
		Noon.		Midnight.	Noon.		Midnight.
		S. D. M. S.	S. D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
Th.	1	4. 8. 10. 54	4. 15. 7. 24	5. 0. 12 N	5. 0. 3 N		
F.	2	4. 22. 7. 41	4. 29. 11. 11	4. 55. 25	4. 46. 14		
Sa.	3	5. 6. 17. 15	5. 13. 25. 10	4. 32. 36	4. 14. 37		
Sun.	4	5. 20. 34. 18	5. 27. 44. 1	3. 52. 35	3. 26. 50		
M.	5	6. 4. 53. 47	6. 12. 3. 5	2. 57. 47	2. 25. 56		
Tu.	6	6. 19. 11. 32	6. 26. 18. 48	1. 51. 48	1. 16. 0		
W.	7	7. 3. 24. 41	7. 10. 28. 59	0. 39. 6 N	0. 1. 44 N		
Th.	8	7. 17. 31. 37	7. 24. 32. 30	0. 35. 32 S	1. 12. 6 S		
F.	9	8. 1. 31. 34	8. 8. 28. 44	1. 47. 25	2. 20. 56		
Sa.	10	8. 15. 24. 0	8. 22. 17. 13	2. 52. 12	3. 20. 46		
Sun.	11	8. 29. 8. 20	9. 5. 57. 8	3. 46. 15	4. 8. 20		
M.	12	9. 12. 43. 32	9. 19. 27. 17	4. 26. 46	4. 41. 20		
Tu.	13	9. 26. 8. 12	10. 2. 46. 3	4. 51. 56	4. 58. 29		
W.	14	10. 9. 20. 39	10. 15. 51. 49	5. 1. 0	4. 59. 32		
Th.	15	10. 22. 19. 23	10. 28. 43. 15	4. 54. 14	4. 45. 15		
F.	16	11. 5. 3. 21	11. 11. 19. 40	4. 32. 50	4. 17. 11		
Sa.	17	11. 17. 32. 17	11. 23. 41. 20	3. 58. 34	3. 37. 19		
Sun.	18	11. 29. 47. 1	0. 5. 49. 38	3. 13. 45	2. 48. 7		
M.	19	0. 11. 49. 32	0. 17. 47. 7	2. 20. 46	1. 52. 1		
Tu.	20	0. 23. 42. 52	0. 29. 37. 19	1. 22. 8	0. 51. 28 S		
W.	21	1. 5. 31. 3	1. 11. 24. 41	0. 20. 15 S	0. 11. 11 N		
Th.	22	1. 17. 18. 51	1. 23. 14. 15	0. 42. 35 N	1. 13. 38		
F.	23	1. 29. 11. 31	2. 5. 11. 22	1. 44. 3	2. 13. 31		
Sa.	24	2. 11. 14. 27	2. 17. 21. 26	2. 41. 46	3. 8. 27		
Sun.	25	2. 23. 32. 55	2. 29. 49. 28	3. 33. 14	3. 55. 47		
M.	26	3. 6. 11. 36	3. 12. 39. 43	4. 15. 45	4. 32. 44		
Tu.	27	3. 19. 14. 5	3. 25. 54. 54	4. 46. 25	4. 56. 25		
W.	28	4. 2. 42. 11	4. 9. 35. 49	5. 2. 26	5. 4. 11		
Th.	29	4. 16. 35. 29	4. 23. 40. 45	5. 1. 27	4. 54. 4		
F.	30	5. 0. 50. 58	5. 8. 5. 23	4. 41. 59	4. 25. 16		
Sa.	31	5. 15. 23. 8	5. 22. 43. 20	4. 4. 5	3. 38. 44		

Days of the Week.	Days of the Month.	Age.	THE MOON'S					
			Passage Merid.	Right Ascension.		Declination.		
				Noon.	Midnight.	Noon.	Midnight.	
		D.	H. M.	D. M.	D. M.	D. M.	D. M.	
Th.	1	1	0. 3	132. 1	139. 10	23. 4 N	21. 5 N	
F.	2	2	0. 56	146. 11	153. 3	18. 48	16. 14	
Sa.	3	3	1. 49	159. 47	166. 23	13. 26	10. 26	
Sun.	4	4	2. 39	172. 53	179. 18	7. 18	4. 4 N	
M.	5	5	3. 28	185. 40	192. 2	0. 46 N	2. 32 S	
Tu.	6	6	4. 17	198. 25	204. 52	5. 48 S	8. 59	
W.	7	7	5. 7	211. 24	218. 4	12. 3	14. 57	
Th.	8	8	5. 59	224. 53	231. 52	17. 39	20. 6	
F.	9	9	6. 55	239. 1	246. 20	22. 15	24. 4	
Sa.	10	10	7. 53	253. 48	261. 23	25. 31	26. 35	
Sun.	11	11	8. 53	269. 2	276. 42	27. 14	27. 28	
M.	12	12	9. 52	284. 18	291. 49	27. 17	26. 42	
Tu.	13	13	10. 48	299. 9	306. 18	25. 44	24. 24	
W.	14	14	11. 41	313. 14	319. 55	22. 46	20. 51	
Th.	15	15	12. 30	326. 22	332. 36	18. 43	16. 23	
F.	16	16	13. 15	338. 37	344. 26	13. 54	11. 17	
Sa.	17	17	13. 57	350. 7	355. 39	8. 35	5. 50	
Sun.	18	18	14. 37	1. 5	6. 28	3. 3 S	0. 15 S	
M.	19	19	15. 17	11. 47	17. 7	2. 31 N	5. 16 N	
Tu.	20	20	15. 58	22. 27	27. 51	7. 57	10. 33	
W.	21	21	16. 40	33. 20	38. 55	13. 4	15. 27	
Th.	22	22	17. 25	44. 38	50. 31	17. 42	19. 47	
F.	23	23	18. 12	56. 34	62. 49	21. 41	23. 23	
Sa.	24	24	19. 4	69. 16	75. 56	24. 49	25. 59	
Sun.	25	25	19. 59	82. 47	89. 48	26. 51	27. 24	
M.	26	26	20. 55	96. 58	104. 15	27. 35	27. 23	
Tu.	27	27	21. 52	111. 35	118. 56	26. 48	25. 50	
W.	28	28	22. 49	126. 15	133. 30	24. 29	22. 45	
Th.	29	29	23. 43	140. 40	147. 43	20. 40	18. 16	
F.	30	1	♂	154. 38	161. 26	15. 34	12. 38	
Sa.	31	2	0. 35	168. 9	174. 46	9. 31	6. 14	

Days of the Week.	Days of the Month.	THE MOON'S				Proportional Logarithm.	
		Semidiameter.		Hor. Parallax.			
		Noon.	Midnight.	Noon.	Midnight.	Noon.	Midn.
		M. S.	M. S.	M. S.	M. S.		
Th.	1	15. 54	15. 59	58. 21	58. 38	4892	4871
F.	2	16. 3	16. 7	58. 54	59. 7	4852	4835
Sa.	3	16. 10	16. 12	59. 19	59. 28	4821	4810
Sun.	4	16. 14	16. 15	59. 34	59. 39	4802	4797
M.	5	16. 16	16. 16	59. 41	59. 41	4794	4794
Tu.	6	16. 15	16. 14	59. 39	59. 36	4797	4800
W.	7	16. 13	16. 11	59. 31	59. 25	4806	4813
Th.	8	16. 10	16. 7	59. 18	59. 10	4822	4832
F.	9	16. 5	16. 2	59. 1	58. 50	4843	4856
Sa.	10	15. 59	15. 56	58. 39	58. 27	4870	4885
Sun.	11	15. 52	15. 49	58. 15	58. 2	4900	4916
M.	12	15. 45	15. 41	57. 48	57. 34	4933	4951
Tu.	13	15. 37	15. 33	57. 19	57. 4	4970	4989
W.	14	15. 29	15. 24	56. 48	56. 32	5009	5029
Th.	15	15. 20	15. 16	56. 16	56. 1	5050	5069
F.	16	15. 12	15. 8	55. 46	55. 31	5089	5108
Sa.	17	15. 4	15. 1	55. 17	55. 5	5127	5142
Sun.	18	14. 57	14. 54	54. 53	54. 42	5158	5173
M.	19	14. 52	14. 50	54. 34	54. 27	5183	5193
Tu.	20	14. 49	14. 48	54. 23	54. 20	5198	5202
W.	21	14. 48	14. 49	54. 20	54. 22	5202	5199
Th.	22	14. 50	14. 52	54. 26	54. 33	5194	5185
F.	23	14. 55	14. 58	54. 43	54. 55	5171	5155
Sa.	24	15. 2	15. 7	55. 10	55. 27	5136	5114
Sun.	25	15. 12	15. 17	55. 46	56. 7	5089	5062
M.	26	15. 24	15. 30	56. 30	56. 54	5032	5002
Tu.	27	15. 37	15. 44	57. 19	57. 45	4970	4937
W.	28	15. 51	15. 58	58. 11	58. 35	4905	4875
Th.	29	16. 4	16. 10	58. 58	59. 20	4846	4820
F.	30	16. 16	16. 20	59. 40	59. 57	4795	4775
Sa.	31	16. 24	16. 26	60. 10	60. 20	4759	4747

DISTANCES of MOON's Center from SUN, and from STARS EAST of her.

Stars Names.	Days	Noon.	III ^h .	VI ^h .	.IX ^h .	Midnight.	XV ^h .	XVIII ^h .	XXI ^h .
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
Spica η	2	- - -	- - -	- - -	- - -	52. 15. 12	50. 29. 35	48. 43. 51	46. 57. 58
	3	45. 11. 58	43. 25. 51	41. 39. 38	39. 53. 22	38. 7. 0	36. 20. 34	34. 34. 8	32. 47. 42
	4	31. 1. 15	29. 14. 47	27. 28. 25	25. 42. 10	23. 56. 2	22. 10. 5	20. 24. 23	18. 38. 55
	5	16. 53. 46	- - -	- - -	- - -	- - -	- - -	- - -	- - -
Antares.	5	62. 28. 5	60. 40. 40	58. 53. 17	57. 5. 55	55. 18. 34	53. 31. 15	51. 44. 0	49. 56. 47
	6	48. 9. 38	46. 22. 33	44. 35. 32	42. 48. 36	41. 1. 44	39. 14. 58	37. 28. 17	35. 41. 43
	7	33. 55. 15	- - -	- - -	- - -	- - -	- - -	- - -	- - -
α Aquilæ.	7	85. 46. 59	84. 19. 0	82. 51. 12	81. 23. 36	79. 56. 15	78. 29. 9	77. 2. 24	75. 36. 0
	8	74. 9. 56	72. 44. 16	71. 19. 6	69. 54. 25	68. 30. 13	67. 6. 36	65. 43. 36	64. 21. 15
	9	62. 59. 35	- - -	- - -	- - -	- - -	- - -	- - -	- - -
Fomalhaut.	9	88. 54. 1	87. 13. 31	85. 33. 9	83. 52. 56	82. 12. 52	80. 32. 58	78. 53. 15	77. 13. 44
	10	75. 34. 24	73. 55. 17	72. 10. 25	70. 37. 46	68. 59. 22	67. 21. 12	65. 43. 19	64. 5. 45
	11	62. 28. 27	60. 51. 28	59. 14. 51	57. 38. 36	56. 2. 43	54. 27. 11	52. 52. 7	51. 17. 30
	12	49. 43. 22	48. 9. 42	46. 36. 38	45. 4. 12	43. 32. 23	42. 1. 16	40. 30. 55	39. 1. 21
α Arietis.	13	37. 32. 36	- - -	- - -	- - -	- - -	- - -	- - -	- - -
	13	99. 24. 30	97. 46. 45	96. 9. 11	94. 31. 49	92. 54. 39	91. 17. 41	89. 40. 55	88. 4. 22
	14	86. 28. 1	84. 51. 53	83. 15. 58	81. 40. 17	80. 4. 49	78. 29. 35	76. 54. 35	75. 19. 50
	15	73. 45. 19	72. 11. 3	70. 37. 2	69. 3. 16	67. 29. 45	65. 56. 29	64. 23. 30	62. 50. 46

Stars Names.	Days	Noon.		III ^h .		VI ^h .		IX ^h .		Midnight.		XV ^h .		XVIII ^h .		XXI ^h .	
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
α Arietis.	16	61. 18. 19	59. 46. 8		58. 14. 15		56. 42. 38		55. 11. 19		53. 40. 17		52. 9. 33		50. 39. 6		
	17	49. 8. 58															
Aldebaran.	17	79. 8. 5	77. 36. 29		76. 5. 3		74. 33. 51		73. 2. 51		71. 32. 4		70. 1. 28		68. 31. 5		
	18	67. 0. 53	65. 30. 53		64. 1. 4		62. 31. 27		61. 2. 1		59. 32. 46		58. 3. 41		56. 34. 48		
	19	55. 6. 5	53. 37. 33		52. 9. 10		50. 40. 59		49. 12. 57		47. 45. 5		46. 17. 23		44. 49. 51		
	20	43. 22. 29	41. 55. 16		40. 28. 15		39. 1. 23		37. 34. 43		36. 8. 14		34. 41. 57		33. 15. 51		
	21	31. 49. 58															
Pollux.	21	75. 4. 46	73. 36. 5		72. 7. 23		70. 38. 41		69. 9. 57		67. 41. 12		66. 12. 23		64. 43. 32		
	22	63. 14. 37	61. 45. 38		60. 16. 35		58. 47. 25		57. 18. 11		55. 48. 50		54. 19. 21		52. 49. 45		
	23	51. 20. 1															
The Sun.	20	- - -	- - -		120. 56. 28		119. 35. 14		118. 14. 2		116. 52. 52		115. 31. 42		114. 10. 33		
	21	112. 49. 25	111. 28. 16		110. 7. 6		108. 45. 55		107. 24. 43		106. 3. 29		104. 42. 11		103. 20. 50		
	22	101. 59. 26	100. 37. 56		99. 16. 22		97. 54. 42		96. 32. 56		95. 11. 3		93. 49. 3		92. 26. 56		
	23	91. 4. 40	89. 42. 15		88. 19. 40		86. 56. 55		85. 34. 0		84. 10. 54		82. 47. 35		81. 24. 4		
	24	80. 0. 21	78. 36. 25		77. 12. 13		75. 47. 48		74. 23. 8		72. 58. 12		71. 32. 59		70. 7. 31		
	25	68. 41. 45	67. 15. 42		65. 49. 22		64. 22. 42		62. 55. 46		61. 28. 29		60. 0. 52		58. 32. 56		
	26	57. 4. 39	55. 36. 2		54. 7. 4		52. 37. 45		51. 8. 6		49. 38. 6		48. 7. 44		46. 37. 1		
	27	45. 5. 57	43. 34. 32		42. 2. 45		40. 30. 36		38. 58. 6								

DISTANCES of MOON's Center from SUN, and from STARS WEST of her.

Stars Names.	Days	Noon.		III ^h .		VI ^h .		IX ^h .		Midnight.		XV ^h .		XVIII ^h .		XXI ^h .	
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
The Sun.	4	38.43.45	40.22.55	42.2.11	43.41.34	45.21.1	47.0.33	48.40.8	50.19.46	58.38.18	60.17.59	61.57.39	63.37.17	65.16.54	66.56.28	68.35.58	70.15.26
	5	51.59.27	53.39.9	55.18.52	56.58.35	58.38.18	60.17.59	61.57.39	63.37.17	65.16.54	66.56.28	68.35.58	70.15.26	71.54.50	73.34.10	75.13.25	76.52.37
	6	65.16.54	66.56.28	68.35.58	70.15.26	71.54.50	73.34.10	75.13.25	76.52.37	78.31.43	80.10.43	81.49.38	83.28.27	85.7.11	86.45.49	88.24.19	90.2.44
	7	78.31.43	80.10.43	81.49.38	83.28.27	85.7.11	86.45.49	88.24.19	90.2.44	91.41.2	93.19.13	94.57.17	96.35.13	98.13.2	99.50.43	101.28.16	103.5.42
	8	91.41.2	93.19.13	94.57.17	96.35.13	98.13.2	99.50.43	101.28.16	103.5.42	104.42.59	106.20.7	107.57.6	109.33.57	111.10.39	112.47.13	114.23.38	115.59.54
	9	104.42.59	106.20.7	107.57.6	109.33.57	111.10.39	112.47.13	114.23.38	115.59.54	117.36.0	119.11.56	120.47.42					
Spica ν	10	117.36.0	119.11.56	120.47.42													
	11	26.31.4	28.15.48	30.0.30	31.45.11	33.29.50	35.14.26	36.58.57	38.43.24	40.27.46	42.12.1	43.56.9	45.40.12	47.24.8	49.7.58	50.51.40	52.35.14
	12	40.27.46	42.12.1	43.56.9	45.40.12	47.24.8	49.7.58	50.51.40	52.35.14	54.18.41	56.1.59	57.45.9	59.28.10	61.11.3	62.53.47	64.36.22	66.18.48
	13	54.18.41	56.1.59	57.45.9	59.28.10	61.11.3	62.53.47	64.36.22	66.18.48	68.1.5							
Antares.	14	68.1.5															
	15	22.7.47	23.49.37	25.31.20	27.12.56	28.54.25	30.35.46	32.16.58	33.58.1	35.38.55	37.19.39	39.0.13	40.40.37	42.20.50	44.0.53	45.40.44	47.20.24
	16	35.38.55	37.19.39	39.0.13	40.40.37	42.20.50	44.0.53	45.40.44	47.20.24	48.59.53	50.39.9	52.18.14	53.57.6	55.35.47	57.14.16	58.52.33	60.30.37
	17	48.59.53	50.39.9	52.18.14	53.57.6	55.35.47	57.14.16	58.52.33	60.30.37	62.8.29	63.46.8	65.23.34	67.0.48	68.37.48	70.14.35	71.51.9	73.27.29
	18	62.8.29	63.46.8	65.23.34	67.0.48	68.37.48	70.14.35	71.51.9	73.27.29	75.3.37	76.39.31	78.15.12	79.59.40	81.25.55	83.0.56	84.35.44	86.10.19
	19	75.3.37	76.39.31	78.15.12	79.59.40	81.25.55	83.0.56	84.35.44	86.10.19	87.44.40	89.18.48	90.52.43	92.26.26	93.59.55	95.33.9	97.6.11	98.39.3
	20	87.44.40	89.18.48	90.52.43	92.26.26	93.59.55	95.33.9	97.6.11	98.39.3	100.11.44	101.44.10	103.16.24	104.48.27	106.20.17			

Stars Names.	Days	Noon.	III ^h .	VI ^h .	IX ^h .	Midnight.	XV ^h .	XVIII ^h .	XXI ^h .
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
α Aquilæ.	17	- - -	- - -	- - -	- - -	61. 52. 35	63. 3. 29	64. 14. 43	65. 26. 15
	18	66. 38. 3	67. 50. 7	69. 2. 23	70. 14. 52	71. 27. 34	72. 40. 24	73. 53. 20	75. 6. 25
	19	76. 19. 37	77. 32. 54	78. 46. 14	79. 59. 39	81. 13. 5			
Fomalhaut.	19	- - -	- - -	- - -	- - -	49. 24. 36	50. 47. 43	52. 10. 58	53. 34. 22
	20	54. 57. 53	56. 21. 32	57. 45. 18	59. 9. 11	60. 33. 10	61. 57. 15	63. 21. 25	64. 45. 42
	21	66. 10. 5	67. 34. 33	68. 59. 6	70. 23. 46	71. 48. 31	73. 13. 22	74. 38. 18	76. 3. 22
	22	77. 28. 31	78. 53. 47	80. 19. 11	81. 44. 41	83. 10. 19			
α Arietis.	22	- - -	- - -	- - -	- - -	20. 15. 9	21. 32. 40	22. 51. 30	24. 11. 31
	23	25. 32. 39	26. 54. 51	28. 17. 54	29. 41. 48	31. 6. 32	32. 31. 47	33. 57. 36	35. 24. 2
	24	36. 51. 3	38. 18. 31	39. 46. 27	41. 14. 52	42. 43. 46	44. 13. 5	45. 42. 49	47. 13. 0
	25	48. 43. 36	50. 14. 37	51. 46. 2	53. 17. 52	54. 50. 5			
	25	- - -	- - -	- - -	- - -	24. 40. 32	26. 10. 36	27. 41. 26	29. 13. 1
Aldebaran.	26	30. 45. 17	32. 18. 15	33. 51. 49	35. 26. 0	37. 0. 48	38. 36. 6	40. 11. 56	41. 48. 18
	27	43. 25. 11	45. 2. 34	46. 40. 25	48. 18. 45	49. 57. 34	51. 36. 51	53. 16. 35	54. 56. 46
	28	56. 37. 24	58. 18. 29	59. 59. 59	61. 41. 55	63. 24. 16	65. 7. 2	66. 50. 11	68. 33. 44
	29	70. 17. 40							

Days of the Week.	Days of the Month.	Sundays, Holidays, Terms, &c.	Phases of the MOON.
			D. H. M.
			☾ First Quarter - - - - 6. 2. 59
			☉ Full Moon - - - - - 13. 14. 31
			☾ Last Quarter - - - - - 21. 19. 23
			● New Moon - - - - - 28. 20. 4
			Other Phenomena.
			D. H. M.
			1. - - ♀ ♀ ♀, * 48' North.
			1. 11. 53 ☾ γ ♀
			2. 1. 2 ☾ θ ♀
			3. 7. 45 ☾ λ ♀
			3. 21. 15 ☾ α ♀
			4. 6. 56 I. ♀ ad ♀ * 1' 1/2 N. ☾'s C.
			4. 8. 2 E. ♀ ad ♀ * 4' N. ☾'s C.
			5. 2. 40 ☾ δ ♀
			7. 20. 12 ☾ φ ♀
			8. 0. 9 ☾ σ ♀
			8. 4. 33 ☾ τ ♀
			10. - - ♀ δ ♀, * 19' South.
			10. 21. 32 ☾ ε ♀
			12. 23. 24 ☾ ι ad ♀
			13. 0. 15 ☾ κ ad ♀
			13. 0. 23 ☾ λ ad ♀
			15. - - ♂ ♀ diff. Lat. 14'.
			18. 8. 54 ☾ δ ♀
			20. - - ♂ Stationary.
			21. 6. 28 ☾ ι 5 ♂
			22. 13. 49 ☉ enters ♀
			23. 3. 33 ☾ ι ♀
			23. 22. 35 ☾ κ ad ♀
			26. - - ♀ Stationary.
			26. 0. 53 ☾ η ♀
			30. 16. 43 ☾ λ ♀
Sun.	1	15th Sun. after Tr. Giles.	
M.	2	London burnt 1666 O.S.	
Tu.	3		
W.	4		
Th.	5		
F.	6		
Sa.	7	Enurchus.	
Sun.	8	16th Sun. aft. Tr. Nat. of	
M.	9	[B. V. Mary.	
Tu.	10		
W.	11		
Th.	12		
F.	13		
Sa.	14	Holy Cross.	
Sun.	15	17th Sunday after Trinity.	
M.	16		
Tu.	17	Lambert.	
W.	18		
Th.	19		
F.	20		
Sa.	21	St. Matthew.	
Sun.	22	18th Sun. after Tr. K. Geo.	
M.	23	[III. crown'd 1761.	
Tu.	24		
W.	25		
Th.	26	St. Cyprian.	
F.	27		
Sa.	28		
Sun.	29	19th Su. aft. Tr. St. Mich.	
M.	30	St. Jerome. [Prs. Royalb.	

Days of the Week.	Days of the Month.	THE S U N's			Equation of Time.	Diff.
		Longitude.	R ^t . Ascen. in Time.	Declin. North.		
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	S.
Sun.	1	5. 8. 58. 35	10. 42. 19, 2	8. 12. 48	0. 14, 9	18, 8
M.	2	5. 9. 56. 46	10. 45. 56, 9	7. 50. 53	0. 33, 7	19, 0
Tu.	3	5. 10. 54. 59	10. 49. 34, 4	7. 28. 51	0. 52, 7	19, 4
W.	4	5. 11. 53. 13	10. 53. 11, 5	7. 6. 42	1. 12, 1	19, 6
Th.	5	5. 12. 51. 28	10. 56. 48, 4	6. 44. 25	1. 31, 7	19, 8
F.	6	5. 13. 49. 45	11. 0. 25, 1	6. 22. 2	1. 51, 5	20, 0
Sa.	7	5. 14. 48. 4	11. 4. 1, 6	5. 59. 33	2. 11, 5	20, 3
Sun.	8	5. 15. 46. 24	11. 7. 37, 8	5. 36. 59	2. 31, 8	20, 5
M.	9	5. 16. 44. 45	11. 11. 13, 9	5. 14. 18	2. 52, 3	20, 6
Tu.	10	5. 17. 43. 8	11. 14. 49, 8	4. 51. 32	3. 12, 9	20, 7
W.	11	5. 18. 41. 32	11. 18. 25, 5	4. 28. 42	3. 33, 6	20, 9
Th.	12	5. 19. 39. 58	11. 22. 1, 1	4. 5. 47	3. 54, 5	21, 0
F.	13	5. 20. 38. 26	11. 25. 36, 6	3. 42. 47	4. 15, 5	21, 1
Sa.	14	5. 21. 36. 55	11. 29. 12, 0	3. 19. 44	4. 36, 6	21, 1
Sun.	15	5. 22. 35. 27	11. 32. 47, 4	2. 56. 37	4. 57, 7	21, 1
M.	16	5. 23. 34. 1	11. 36. 22, 8	2. 33. 26	5. 18, 8	21, 2
Tu.	17	5. 24. 32. 36	11. 39. 58, 1	2. 10. 13	5. 40, 0	21, 1
W.	18	5. 25. 31. 14	11. 43. 33, 5	1. 46. 56	6. 1, 1	21, 1
Th.	19	5. 26. 29. 54	11. 47. 9, 0	1. 23. 37	6. 22, 2	20, 9
F.	20	5. 27. 28. 36	11. 50. 44, 5	1. 0. 16	6. 43, 1	20, 9
Sa.	21	5. 28. 27. 21	11. 54. 20, 1	0. 36. 53	7. 4, 0	20, 8
Sun.	22	5. 29. 26. 8	11. 57. 55, 7	0. 13. 29 South.	7. 24, 8	20, 7
M.	23	6. 0. 24. 57	12. 1. 31, 6	0. 9. 56	7. 45, 5	20, 6
Tu.	24	6. 1. 23. 49	12. 5. 7, 5	0. 33. 23	8. 6, 1	20, 3
W.	25	6. 2. 22. 43	12. 8. 43, 7	0. 56. 49	8. 26, 4	20, 1
Th.	26	6. 3. 21. 40	12. 12. 20, 1	1. 20. 16	8. 46, 5	20, 0
F.	27	6. 4. 20. 38	12. 15. 56, 6	1. 43. 42	9. 6, 5	19, 7
Sa.	28	6. 5. 19. 39	12. 19. 33, 4	2. 7. 8	9. 26, 2	19, 5
Sun.	29	6. 6. 18. 42	12. 23. 19, 4	2. 30. 33	9. 45, 7	19, 2
M.	30	6. 7. 17. 47	12. 26. 47, 7	2. 53. 56	10. 4, 9	

III. SEPTEMBER 1799. 99

Days	Time of ☉'s Semidiam. pass ^g Merid.	THE SUN'S			Place of the ☉'s Node.
	M. S.	Semi- diameter M. S.	Hourly Motion. M. S.	Logar Distance.	S. D. M.
1	1. 4, 3	15. 54, 8	2. 25, 3	0.003623	1. 9. 40
7	1. 4, 1	15. 56, 3	2. 25, 7	0.002947	1. 9. 21
13	1. 4, 0	15. 57, 9	2. 26, 2	0.002235	1. 9. 2
19	1. 4, 0	15. 59, 4	2. 26, 7	0.001523	1. 8. 43
25	1. 4, 1	16. 1, 1	2. 27, 3	0.000803	1. 8. 24

ECLIPSES of the SATELLITES of JUPITER.

I. Satellite.		II. Satellite.		III. Satellite.	
<i>Immersion.</i>					
Days.	H. M. S.	Days.	H. M. S.	Days.	H. M. S.
* 1	12. 32. 29	1	2. 58. 18 Im.	5	17. 48. 55 Im.
3	7. 1. 28	1	5. 25. 37 E.	5	20. 24. 13 E.
5	1. 30. 26	* 4	16. 17. 20 Im.	12	21. 50. 14 Im.
6	19. 59. 25	4	18. 44. 47 E.	13	0. 26. 40 E.
* 8	14. 28. 27	8	5. 36. 19 Im.	20	1. 51. 32 Im.
10	8. 57. 25	8	8. 3. 52 E.	20	4. 29. 5 E.
12	3. 26. 27	11	18. 55. 24 Im.	27	5. 52. 44 Im.
13	21. 55. 23	11	21. 23. 4 E.	27	8. 31. 24 E.
* 15	16. 24. 26	15	8. 14. 34 Im.	IV. Satellite. Conj.	
17	10. 53. 25	15	10. 42. 22 E.		
19	5. 22. 25	18	21. 33. 46 Im.		
20	23. 51. 24	19	0. 1. 39 E.		
22	18. 20. 23	22	10. 53. 1 Im.	6	23. 31 Sup.
* 24	12. 49. 22	* 22	13. 21. 1 E.	15	7. 19 Inf.
26	7. 18. 19	26	0. 12. 15 Im.	23	18. 5 Sup.
28	1. 47. 17	26	2. 40. 22 E.		
29	20. 16. 12	* 29	13. 31. 29 Im.		
		* 29	15. 59. 44 E.		

Days	THE PLANETS					
	Heliocentric		Geocentric		Declin.	Passage Merid.
	Long.	Lat.	Long.	Lat.		
	S. D. M.	D. M.	S. D. M.	D. M.	D. M.	H. M.
♿ Gr. Elong. 26 ^d . <i>MERCURY</i> .						Inf. ♂ 10 ^d . 6 ^h ₂ .
1	10. 11. 34	6. 59 S	5. 25. 33	4. 20 S	2. 13 S	0. 54
4	10. 22. 23	6. 57	5. 23. 48	4. 19	1. 30	0. 37
7	11. 4. 4	6. 39	5. 21. 15	4. 1	0. 14 S	0. 18
10	11. 16. 50	6. 1	5. 18. 13	3. 26	1. 30 N	23. 49
13	0. 0. 48	4. 59	5. 15. 19	2. 37	3. 23	23. 30
16	0. 16. 7	3. 30	5. 13. 8	1. 39	5. 6	23. 14
19	1. 2. 46	1. 36 S	5. 12. 10	0. 40 S	6. 23	23. 3
22	1. 20. 38	0. 34 N	5. 12. 40	0. 13 N	7. 1	22. 57
25	2. 9. 19	2. 47	5. 14. 36	0. 55	6. 56	22. 57
28	2. 28. 14	4. 43	5. 17. 43	1. 27	6. 11	22. 59
30	3. 10. 40	5. 43	5. 20. 20	1. 41	5. 23	23. 1
♀ <i>VENUS</i> .						
1	10. 11. 12	2. 49 S	6. 21. 54	4. 7 S	12. 22 S	2. 32
7	10. 20. 42	3. 6	6. 25. 41	4. 57	14. 33	2. 24
13	11. 0. 11	3. 17	6. 28. 44	5. 46	16. 26	2. 12
19	11. 9. 41	3. 22	7. 0. 47	6. 33	17. 53	1. 58
25	11. 19. 12	3. 23	7. 1. 39	7. 13	18. 49	1. 39
♂ <i>MARS</i> .						♂ 15 ^d . 0 ^h .
1	5. 16. 24	1. 38 N	5. 13. 36	1. 1 N	7. 24 N	0. 19
7	5. 19. 3	1. 35	5. 17. 27	0. 59	5. 52	0. 11
13	5. 21. 42	1. 33	5. 21. 18	0. 58	4. 21	0. 4
19	5. 24. 21	1. 30	5. 25. 10	0. 56	2. 46	23. 55
25	5. 27. 0	1. 26	5. 29. 2	0. 54	1. 13	23. 48
♃ <i>JUPITER</i> .						□ 23 ^d . 0 ^h ₃ .
1	2. 17. 11	0. 30 S	2. 27. 59	0. 28 S	22. 59 N	19. 6
7	2. 17. 42	0. 29	2. 28. 46	0. 28	22. 59	18. 48
13	2. 18. 13	0. 28	2. 29. 28	0. 28	23. 0	18. 30
19	2. 18. 45	0. 28	3. 0. 5	0. 28	23. 0	18. 11
25	2. 19. 16	0. 27	3. 0. 36	0. 28	23. 0	17. 51
♄ <i>SATURN</i> .						
1	4. 1. 17	0. 24 N	4. 4. 52	0. 22 N	19. 26 N	21. 44
7	4. 1. 30	0. 25	4. 5. 32	0. 23	19. 17	21. 25
13	4. 1. 44	0. 26	4. 6. 11	0. 24	19. 8	21. 6
19	4. 1. 57	0. 26	4. 6. 47	0. 24	19. 0	20. 47
25	4. 2. 10	0. 27	4. 7. 22	0. 25	18. 52	20. 28
♅ <i>GEORGIAN</i> .						♂ 15 ^d . 11 ^h .
1	5. 22. 50	0. 46 N	5. 22. 7	0. 43 N	3. 47 N	0. 50
11	5. 22. 58	0. 46	5. 22. 45	0. 43	3. 32	0. 16
21	5. 23. 6	0. 46	5. 23. 23	0. 43	3. 17	23. 39

		THE MOON'S							
Days of the Week.	Days of the Month.	Longitude.				Latitude.			
		Noon.		Midnight.		Noon.		Midnight.	
		S. D. M. S.		S. D. M. S.		D. M. S.		D. M. S.	
Sun.	1	6. 0. 4. 57		6. 7. 27. 4		3. 9. 38 N		2. 37. 17 N	
M.	2	6. 14. 48. 45		6. 22. 9. 13		2. 2. 18		1. 25. 19	
Tu.	3	6. 29. 27. 45		7. 6. 43. 45		0. 47. 3 N		0. 8. 12 N	
W.	4	7. 13. 56. 44		7. 21. 6. 22		0. 30. 33 S		1. 8. 33 S	
Th.	5	7. 28. 12. 27		8. 5. 14. 48		1. 45. 10		2. 19. 51	
F.	6	8. 12. 13. 23		8. 19. 8. 10		2. 52. 9		3. 21. 38	
Sa.	7	8. 25. 59. 14		9. 2. 46. 36		3. 47. 55		4. 10. 42	
Sun.	8	9. 9. 30. 24		9. 16. 10. 42		4. 29. 49		4. 45. 5	
M.	9	9. 22. 47. 36		9. 29. 21. 8		4. 56. 23		5. 3. 40	
Tu.	10	10. 5. 51. 26		10. 12. 18. 33		5. 6. 58		5. 6. 18	
W.	11	10. 18. 42. 31		10. 25. 3. 21		5. 1. 48		4. 53. 35	
Th.	12	11. 1. 21. 10		11. 7. 36. 0		4. 41. 52		4. 26. 50	
F.	13	11. 13. 47. 55		11. 19. 56. 56		4. 8. 44		3. 47. 50	
Sa.	14	11. 26. 3. 14		0. 2. 6. 56		3. 24. 28		2. 58. 54	
Sun.	15	0. 8. 8. 13		0. 14. 7. 18		2. 31. 27		2. 2. 27	
M.	16	0. 20. 4. 26		0. 25. 59. 57		1. 32. 12		1. 1. 4 S	
Tu.	17	1. 1. 54. 14		1. 7. 47. 40		0. 20. 18 S		0. 2. 43 N	
W.	18	1. 13. 40. 43		1. 19. 33. 54		0. 34. 42 N		1. 6. 22	
Th.	19	1. 25. 27. 44		2. 1. 22. 46		1. 37. 25		2. 7. 31	
F.	20	2. 7. 19. 38		2. 13. 18. 55		2. 36. 26		3. 3. 49	
Sa.	21	2. 19. 21. 15		2. 25. 27. 18		3. 29. 24		3. 52. 52	
Sun.	22	3. 1. 37. 38		3. 7. 52. 54		4. 13. 55		4. 32. 14	
M.	23	3. 14. 13. 38		3. 20. 40. 20		4. 47. 30		4. 59. 24	
Tu.	24	3. 27. 13. 28		4. 3. 53. 21		5. 7. 37		5. 11. 51	
W.	25	4. 10. 40. 11		4. 17. 34. 2		5. 11. 51		5. 7. 22	
Th.	26	4. 24. 34. 49		5. 1. 42. 15		4. 58. 14		4. 44. 22	
F.	27	5. 8. 55. 52		5. 16. 15. 3		4. 25. 49		4. 2. 41	
Sa.	28	5. 23. 38. 56		6. 1. 6. 34		3. 35. 13		3. 3. 50	
Sun.	29	6. 8. 36. 54		6. 16. 8. 48		2. 29. 6		1. 51. 37	
M.	30	6. 23. 41. 3		7. 1. 12. 33		1. 12. 6		0. 31. 19	

THE MOON'S								
Days of the Week.	Days of the Month.	Age.	Passage	Right Ascension.		Declination.		
			Merid.	Noon.	Midnight.	Noon.	Midnight.	
			D. H. M.	D. M.	D. M.	D. M.	D. M.	
Sun.	1	3	1. 26	181. 20	187. 53	2. 52 N	0. 34 S	
M.	2	4	2. 17	194. 26	201. 1	3. 58 S	7. 19	
Tu.	3	5	3. 8	207. 40	214. 26	10. 34	13. 39	
W.	4	6	4. 1	221. 19	228. 21	16. 32	19. 9	
Th.	5	7	4. 57	235. 32	242. 52	21. 29	23. 30	
F.	6	8	5. 55	250. 19	257. 53	25. 8	26. 22	
Sa.	7	9	6. 54	265. 30	273. 8	27. 12	27. 37	
Sun.	8	10	7. 54	280. 43	288. 12	27. 37	27. 12	
M.	9	11	8. 51	295. 32	302. 41	26. 24	25. 15	
Tu.	10	12	9. 44	309. 37	316. 19	23. 47	22. 1	
W.	11	13	10. 33	322. 48	329. 4	20. 1	17. 47	
Th.	12	14	11. 19	335. 7	340. 59	15. 23	12. 51	
F.	13	15	12. 2	346. 42	352. 16	10. 12	7. 28	
Sa.	14	16	12. 43	357. 44	3. 8	4. 42 S	1. 54 S	
Sun.	15	17	13. 23	8. 28	13. 47	0. 55 N	3. 42 N	
M.	16	18	14. 3	19. 7	24. 29	6. 26	9. 6	
Tu.	17	19	14. 45	29. 54	35. 25	11. 41	14. 10	
W.	18	20	15. 28	41. 2	46. 48	16. 31	18. 42	
Th.	19	21	16. 14	52. 42	58. 47	20. 43	22. 32	
F.	20	22	17. 4	65. 3	71. 29	24. 8	25. 28	
Sa.	21	23	17. 57	78. 6	84. 54	26. 31	27. 16	
Sun.	22	24	18. 51	91. 50	98. 53	27. 42	27. 46	
M.	23	25	19. 47	106. 1	113. 12	27. 28	26. 48	
Tu.	24	26	20. 42	120. 24	127. 33	25. 46	24. 21	
W.	25	27	21. 37	134. 39	141. 41	22. 34	20. 27	
Th.	26	28	22. 30	148. 37	155. 28	18. 1	15. 18	
F.	27	29	23. 22	162. 14	168. 56	12. 20	9. 9	
Sa.	28	1	0	175. 36	182. 14	5. 49 N	2. 22 N	
Sun.	29	2	0. 13	188. 54	195. 35	1. 8 S	4. 38 S	
M.	30	3	1. 5	202. 22	209. 15	8. 5	11. 25	

VII. SEPTEMBER 1799. 103

Days of the Week.	Days of the Month.	THE MOON'S				Proportional Logarithm.	
		Semidiameter.		Hor. Parallax.			
		Noon.	Midnight.	Noon.	Midnight.		
		M. S.	M. S.	M. S.	M. S.	Noon.	Midn.
Sun.	1	16. 28	16. 29	60. 27	60. 30	4739	4735
M.	2	16. 29	16. 28	60. 30	60. 26	4735	4740
Tu.	3	16. 26	16. 23	60. 19	60. 9	4748	4760
W.	4	16. 20	16. 16	59. 57	59. 43	4775	4792
Th.	5	16. 12	16. 8	59. 27	59. 11	4811	4831
F.	6	16. 3	15. 58	58. 55	58. 37	4850	4872
Sa.	7	15. 53	15. 49	58. 19	58. 1	4895	4917
Sun.	8	15. 44	15. 39	57. 44	57. 26	4938	4961
M.	9	15. 34	15. 30	57. 9	56. 52	4983	5004
Tu.	10	15. 25	15. 21	56. 36	56. 21	5025	5044
W.	11	15. 17	15. 13	56. 6	55. 51	5063	5082
Th.	12	15. 10	15. 6	55. 38	55. 25	5099	5116
F.	13	15. 3	15. 0	55. 13	55. 2	5132	5146
Sa.	14	14. 57	14. 54	54. 51	54. 41	5161	5174
Sun.	15	14. 52	14. 50	54. 32	54. 25	5186	5195
M.	16	14. 48	14. 47	54. 20	54. 16	5202	5207
Tu.	17	14. 46	14. 46	54. 13	54. 12	5211	5213
W.	18	14. 46	14. 47	54. 13	54. 16	5211	5207
Th.	19	14. 49	14. 51	54. 21	54. 29	5201	5190
F.	20	14. 54	14. 57	54. 39	54. 51	5177	5161
Sa.	21	15. 1	15. 5	55. 5	55. 22	5142	5120
Sun.	22	15. 10	15. 16	55. 41	56. 3	5095	5067
M.	23	15. 23	15. 30	56. 27	56. 53	5036	5003
Tu.	24	15. 37	15. 45	57. 20	57. 48	4968	4933
W.	25	15. 53	16. 0	58. 16	58. 44	4898	4864
Th.	26	16. 8	16. 15	59. 12	59. 39	4830	4797
F.	27	16. 22	16. 28	60. 3	60. 24	4768	4742
Sa.	28	16. 32	16. 36	60. 42	60. 57	4721	4703
Sun.	29	16. 39	16. 41	61. 7	61. 13	4691	4684
M.	30	16. 41	16. 40	61. 14	61. 10	4683	4687

DISTANCES of MOON's Center from SUN, and from STARS EAST of her.

Stars Names.	Days	Noon.		III ^h .		VI ^h .		IX ^h .		Midnight.		XV ^h .		XVIII ^h .		XXI ^h .	
		D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.
Antares.	1	67.	15.56	65.	25.22	63.	34.47	61.	44.11	59.	53.34	58.	2.57	56.	12.22	54.	21.49
	2	52.	31.18	50.	40.50	48.	50.28	47.	0.11	45.	10.0	43.	19.55	41.	29.59	39.	40.12
	3	37.	50.33	36.	1.4	34.	11.46	32.	22.39	30.	33.45						
α Aquilæ.	3	-	-	-	-	-	-	-	-	83.	8.47	81.	39.12	80.	9.56	78.	41.2
	4	77.	12.32	75.	44.26	74.	16.52	72.	49.49	71.	23.16	69.	57.18	68.	32.0	67.	7.24
	5	65.	43.28	64.	20.19	62.	57.59	61.	36.31	60.	15.56						
Fomalhaut.	5	-	-	-	-	-	-	-	-	85.	14.15	83.	33.19	81.	52.39	80.	12.17
	6	78.	32.13	76.	52.26	75.	12.59	73.	33.51	71.	55.2	70.	16.33	68.	38.25	67.	0.39
	7	65.	23.14	63.	46.12	62.	9.34	60.	33.20	58.	57.30	57.	22.4	55.	47.6	54.	12.37
	8	52.	38.35	51.	5.2	49.	32.3	47.	59.39	46.	27.49	44.	56.38	43.	26.6	41.	56.15
	9	40.	27.8														
α Arietis.	9	102.	42.41	101.	5.58	99.	29.26	97.	53.6	96.	16.58	94.	41.2	93.	5.17	91.	29.41
	10	89.	54.23	88.	19.13	86.	44.16	85.	9.29	83.	34.55	82.	0.33	80.	26.23	78.	52.25
	11	77.	18.39	75.	45.6	74.	11.44	72.	38.35	71.	5.38	69.	32.53	68.	0.20	66.	28.0
	12	64.	55.52	63.	23.57	61.	52.15	60.	20.46	58.	49.31	57.	18.29	55.	47.41	54.	17.7
	13	52.	46.47														
Aldebaran.	13	82.	50.24	81.	18.55	79.	47.35	78.	16.24	76.	45.23	75.	14.31	73.	43.49	72.	13.17
	14	70.	42.54	69.	12.41	67.	42.38	66.	12.45	64.	43.1	63.	13.27	61.	44.1	60.	14.46

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Stars Names.	Days	Noon.		III ^h .		VI ^h .		IX ^h .		Midnight.		XV ^h .		XVIII ^h .		XXI ^h .	
		D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.
Aldebaran.	15	58.45.40		57.16.43		55.47.56		54.19.19		52.50.51		51.22.33		49.54.25		48.26.27	
	16	46.58.39		45.31.0		44.3.32		42.36.15		41.9.8		39.42.12		38.15.28		36.48.58	
	17	35.22.41		33.56.35		32.30.47		31.5.17		29.40.5		28.15.15		26.50.48		25.26.45	
	18	24.3.9															
Pollux.	18	66.52.15		65.23.41		63.55.6		62.26.30		60.57.53		59.29.14		58.0.33		56.31.48	
	19	55.3.1		53.34.10		52.5.15		50.36.14		49.7.9		47.37.58		46.8.40		44.39.16	
	20	43.9.44															
Regulus.	20	79.42.9		78.12.41		76.43.5		75.13.20		73.43.25		72.13.21		70.43.5		69.12.38	
	21	67.42.0		66.11.10		64.40.6		63.8.49		61.37.19		60.5.34		58.33.34		57.1.20	
	22	55.28.51															
The Sun.	19	121.1.21		119.39.59		118.18.32		116.56.59		115.35.21		114.13.37		112.51.45		111.29.46	
	20	110.7.41		108.45.26		107.23.2		106.0.29		104.37.46		103.14.53		101.51.49		100.28.33	
	21	99.5.5		97.41.24		96.17.29		94.53.20		93.28.57		92.4.20		90.39.27		89.14.17	
	22	87.48.52		86.23.8		84.57.6		83.30.46		82.4.8		80.37.11		79.9.53		77.42.15	
	23	76.14.17		74.45.57		73.17.15		71.48.11		70.18.44		68.48.54		67.18.40		65.48.2	
	24	64.17.1		62.45.34		61.13.43		59.41.26		58.8.45		56.35.37		55.2.4		53.28.5	
	25	51.53.41		50.18.50		48.43.33		47.7.51		45.31.43		43.55.9		42.18.10		40.40.44	
	26	39.2.54															
Antares.	30	43.37.10		41.43.53		39.50.40		37.57.32		36.4.30		34.11.35		32.18.49		30.26.14	
	O.1	28.33.49															

XI. SEPTEMBER 1799. 107

Stars Names.	Days	Noon.	III ^h .	VI ^h .	IX ^h .	Midnight.	XV ^h .	XVIII ^h .	XXI ^h .
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
α Aquilæ.	14	63. 40. 10	64. 51. 14	66. 2. 37	67. 14. 18	68. 26. 15	69. 38. 27	70. 50. 51	72. 3. 27
	15	73. 16. 15	74. 29. 11	75. 42. 13	76. 55. 22	78. 8. 38	79. 21. 57	80. 35. 21	81. 48. 46
	16	83. 2. 12							
Fomalhaut.	16	51. 36. 26	52. 59. 54	54. 23. 29	55. 47. 13	57. 11. 3	58. 35. 0	59. 59. 2	61. 23. 9
	17	62. 47. 22	64. 11. 38	65. 35. 58	67. 0. 23	68. 24. 51	69. 49. 23	71. 13. 57	72. 38. 36
	18	74. 3. 18	75. 28. 4	76. 52. 53	78. 17. 47	79. 42. 44	81. 7. 45	82. 32. 51	83. 58. 0
α Arietis.	19	85. 23. 14							
	19	22. 6. 28	23. 25. 47	24. 46. 3	26. 7. 13	27. 29. 12	28. 51. 59	30. 15. 25	31. 39. 29
	20	33. 4. 11	34. 29. 18	35. 54. 52	37. 20. 54	38. 47. 23	40. 14. 13	41. 41. 26	43. 9. 3
Aldebaran.	21	44. 37. 2	46. 5. 22	47. 34. 2	49. 3. 5	50. 32. 28	52. 2. 12	53. 32. 16	55. 2. 42
	22	56. 33. 27							
	22	26. 27. 16	27. 56. 3	29. 25. 29	30. 55. 34	32. 26. 15	33. 57. 33	35. 29. 24	37. 1. 49
Pollux.	23	38. 34. 47	40. 8. 14	41. 42. 11	43. 16. 39	44. 51. 37	46. 27. 3	48. 2. 59	49. 39. 23
	24	51. 16. 17	52. 53. 39	54. 31. 31	56. 9. 50	57. 48. 39	59. 27. 56	61. 7. 41	62. 47. 55
	25	64. 28. 36							
Pollux.	25	20. 9. 28	21. 51. 31	23. 34. 2	25. 17. 3	27. 0. 32	28. 44. 29	30. 28. 53	32. 13. 45
	26	33. 59. 4	35. 44. 50	37. 31. 1	39. 17. 38	41. 4. 41	42. 52. 9	44. 40. 1	46. 28. 17
	27	48. 16. 56	50. 5. 59	51. 55. 22	53. 45. 7	55. 35. 14			

108 SEPTEMBER 1799. XII.

CONFIGURATIONS of the SATELLITES of JUPITER
at Half an Hour past IV o'Clock in the *Morning*.

1	1. O	.3		O	2.		.4
2			.3	2.	1.	O	.4
3			.2		O	1 6 3	.4
4			1.		O	.2	.3
5	2 ●				O	.1	3. 4.
6			2.	.1	O	3.	4.
7			3.		O	.2	4. 1.
8			3.	4.	.1	O	2.
9	1 ●		4.	.3	2.	O	
10	3. O	4.		.2		O	.1
11	4.			1.		O	.2 .3
12	.4					O	2. .1
13	.4		2.	.1		O	3.
14	2. O	.4		3.		O	1.
15		3.		.4 .1		O	2.
16	1 ●		.3	2.		O	.4
17	1. O 3. O		.2			O	.4
18				1.		O	.2 .3 .4
19						O	.1 2. 3. .4
20			2.	1.		O	3. 4.
21				3.	.2	O	1. .4
22			3.	.1		O	.2 4.
23		.3		2.		O	1. 4.
24	4 6		.2	.3 .1		O	
25			4.	1.		O	.2 .3
26		4.				O	.1 2. .3
27	4.		2.	1.		O	3.
28	4.			.2	3.	O	.1
29	.4		3.	.1		O	.2
30	2 ●	.4	.3			O	1.

Days of the Week.	Days of the Month.	Sundays, Holidays, Terms, &c.	Phases of the MOON.	
			D. H. M.	
			☾ First Quarter	---- 5. 11. 34
			☉ Full Moon	---- 13. 7. 24
			☾ Last Quarter	---- 21. 10. 44
			● New Moon	---- 28. 5. 36
			Other Phenomena.	
			D. H. M.	
Tu.	1	Remigius.	1. 5. 46	☾ α ♌
W.	2		1. 15. 21	☾ 1 ad ♌
Th.	3		2. 10. 13	☾ δ ♍
F.	4		5. 2. 10	☾ φ ♏
Sa.	5		5. 10. 24	☾ τ ♏
Sun.	6	20th Sun. aft. Tr. Faith.	6. - -	☿ β ♏, * 1½ South.
M.	7		8. 3. 19	☾ ε ♏
Tu.	8	St. Denys.	10. 5. 37	☾ 1 ad ♏
W.	9	Oxf. and Cam. Ter. beg.	10. 6. 29	☾ 2 ad ♏
Th.	10		10. 6. 37	☾ 3 ad ♏
F.	11		15. 15. 31	☾ δ ♏
Sa.	12		18. 13. 23	☾ 125 ♏
Sun.	13	21st Sun. after Tr. Transf.	19. - -	☾ Stationary.
M.	14	[of K. Edw. Conf.]	20. 11. 18	☾ 1 ♏
Tu.	15		21. 6. 48	☾ 2 ad ♏
W.	16		22. 21. 51	☉ enters ♏
Th.	17	Etheldred.	23. 10. 39	☾ η ♏
F.	18	St. Luke.	26. 9. 16	☾ γ ♏
Sa.	19		27. 5. 36	☾ δ ♏
Sun.	20	22d Sunday after Trinity.	28. - -	☉ eclipsed, invisible.
M.	21			
Tu.	22			
W.	23			
Th.	24			
F.	25	K. Geo. III. Acces. Crisp.		
Sa.	26	K. Geo. III. Procl. 1760.		
Sun.	27	23d Sunday after Trinity.		
M.	28	St. Simon and St. Jude.		
Tu.	29			
W.	30			
Th.	31			

Days of the Week.	Days of the Month.	THE S U N ' s			Equation	Diff.
		Longitude.	R ^t . Ascen. <i>in Time.</i>	Declin. <i>South.</i>	of Time. <i>Sub.</i>	
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	
Tu.	1	6. 8. 16. 54	12. 30. 25, 2	3. 17. 17	10. 23, 9	18, 7
W.	2	6. 9. 16. 3	12. 34. 3, 0	3. 40. 36	10. 42, 6	18, 4
Th.	3	6. 10. 15. 13	12. 37. 41, 2	4. 3. 53	11. 1, 0	18, 1
F.	4	6. 11. 14. 25	12. 41. 19, 6	4. 27. 6	11. 19, 1	17, 7
Sa.	5	6. 12. 13. 40	12. 44. 58, 4	4. 50. 16	11. 36, 8	17, 3
Sun.	6	6. 13. 12. 55	12. 48. 37, 5	5. 13. 23	11. 54, 1	17, 0
M.	7	6. 14. 12. 13	12. 52. 17, 0	5. 36. 26	12. 11, 1	16, 6
Tu.	8	6. 15. 11. 32	12. 55. 56, 9	5. 59. 24	12. 27, 7	16, 2
W.	9	6. 16. 10. 53	12. 59. 37, 3	6. 22. 17	12. 43, 9	15, 8
Th.	10	6. 17. 10. 16	13. 3. 18, 0	6. 45. 5	12. 59, 7	15, 3
F.	11	6. 18. 9. 41	13. 6. 59, 3	7. 7. 48	13. 15, 0	14, 8
Sa.	12	6. 19. 9. 8	13. 10. 41, 0	7. 30. 24	13. 29, 8	14, 3
Sun.	13	6. 20. 8. 36	13. 14. 23, 2	7. 52. 55	13. 44, 1	13, 8
M.	14	6. 21. 8. 6	13. 18. 5, 9	8. 15. 18	13. 57, 9	13, 2
Tu.	15	6. 22. 7. 39	13. 21. 49, 2	8. 37. 35	14. 11, 1	12, 6
W.	16	6. 23. 7. 15	13. 25. 33, 1	8. 59. 46	14. 23, 7	12, 1
Th.	17	6. 24. 6. 50	13. 29. 17, 5	9. 21. 47	14. 35, 8	11, 5
F.	18	6. 25. 6. 30	13. 33. 2, 5	9. 43. 41	14. 47, 3	10, 8
Sa.	19	6. 26. 6. 11	13. 36. 48, 2	10. 5. 27	14. 58, 1	10, 2
Sun.	20	6. 27. 5. 55	13. 40. 34, 6	10. 27. 3	15. 8, 3	9, 5
M.	21	6. 28. 5. 41	13. 44. 21, 7	10. 48. 31	15. 17, 8	8, 8
Tu.	22	6. 29. 5. 30	13. 48. 9, 4	11. 9. 49	15. 26, 6	8, 1
W.	23	7. 0. 5. 21	13. 51. 57, 8	11. 30. 57	15. 34, 7	7, 4
Th.	24	7. 1. 5. 14	13. 55. 46, 9	11. 51. 55	15. 42, 1	6, 6
F.	25	7. 2. 5. 10	13. 59. 36, 8	12. 12. 42	15. 48, 7	5, 9
Sa.	26	7. 3. 5. 8	14. 3. 27, 5	12. 33. 18	15. 54, 6	5, 2
Sun.	27	7. 4. 5. 7	14. 7. 18, 8	12. 53. 43	15. 59, 8	4, 5
M.	28	7. 5. 5. 9	14. 11. 10, 9	13. 13. 55	16. 4, 3	3, 6
Tu.	29	7. 6. 5. 13	14. 15. 3, 9	13. 33. 54	16. 7, 9	2, 9
W.	30	7. 7. 5. 19	14. 18. 57, 5	13. 53. 41	16. 10, 8	2, 1
Th.	31	7. 8. 5. 26	14. 22. 52, 0	14. 13. 14	16. 12, 9	

Days	Time of ☉'s Semidiam. pass ^g Merid.	THE SUN'S			Place of the ☉'s Node.
	M. S.	Semi- diameter	Hourly Motion.	Logar. Distance.	S. D. M.
1	1. 4. 3	16. 2. 7	2. 27. 8	0.000055	1. 8. 5
7	1. 4. 6	16. 4. 4	2. 28. 4	9.999285	1. 7. 46
13	1. 5. 0	16. 6. 0	2. 28. 8	9.998521	1. 7. 27
19	1. 5. 5	16. 7. 6	2. 29. 2	9.997793	1. 7. 8
25	1. 6. 1	16. 9. 3	2. 29. 7	9.997101	1. 6. 49

ECLIPSES of the SATELLITES of JUPITER.

I. Satellite.		II. Satellite.		III. Satellite.	
<i>Immersion.</i>		<i>Immersion.</i>			
Days.	H. M. S.	Days.	H. M. S.	Days.	H. M. S.
* 1	14. 45. 7	3	2. 50. 40	4	9. 53. 43 Im.
3	9. 14. 1	* 6	16. 9. 52	* 4	12. 33. 31 E.
5	3. 42. 55	10	5. 28. 58	* 11	13. 54. 20 Im.
6	22. 11. 48	13	18. 48. 1	* 11	16. 35. 4 E.
* 8	16. 40. 36	17	8. 6. 55	* 18	17. 54. 37 Im.
* 10	11. 9. 26	20	21. 25. 46	18	20. 36. 28 E.
12	5. 38. 13	* 24	10. 44. 29	25	21. 54. 16 Im.
14	0. 7. 0	28	0. 3. 6	26	0. 37. 14 E.
15	18. 35. 45	* 31	13. 21. 35		
* 17	13. 4. 29				
19	7. 33. 9				
21	2. 1. 47				
22	20. 30. 22				
* 24	14. 58. 57				
* 26	9. 27. 29				
28	3. 56. 1				
29	22. 24. 27				
* 31	16. 52. 52				
				IV. Satellite. Conj.	
				2	1. 26 Inf.
				* 10	11. 45 Sup.
				18	18. 33 Inf.
				27	4. 21 Sup.

THE PLANETS							
Days	Heliocentric		Geocentric		Declin.	Passage	
	Long.	Lat.	Long.	Lat.		Merid.	
	S. D. M.	D. M.	S. D. M.	D. M.		D. M.	H. M.
♿ MERCURY. Sup. ♂ 25 ^d . 0 ^h . 4 ^m .							
1	3. 16. 45	6. 7 N	5. 21. 45	1. 46 N	4. 54 N	23. 4	
4	4. 4. 18	6. 51	5. 26. 22	1. 55	3. 12	23. 11	
7	4. 20. 31	6. 59	6. 1. 22	1. 56	1. 14 N	23. 18	
10	5. 5. 17	6. 37	6. 6. 30	1. 50	0. 54 S	23. 26	
13	5. 18. 42	5. 54	6. 11. 43	1. 40	3. 7	23. 34	
16	6. 0. 52	4. 58	6. 16. 55	1. 26	5. 20	23. 41	
19	6. 12. 3	3. 55	6. 22. 2	1. 9	7. 32	23. 49	
22	6. 22. 22	2. 49	6. 27. 5	0. 50	9. 40	23. 56	
25	7. 2. 1	1. 42	7. 2. 4	0. 31	11. 43	0. 1	
28	7. 11. 9	0. 35 N	7. 6. 58	0. 11 N	13. 41	0. 8	
31	7. 19. 54	0. 29 S	7. 11. 48	0. 9 S	15. 32	0. 14	
♀ VENUS. Inf. ♂ 15 ^d . 19 ^h . 1 ^m .							
1	11. 28. 44	3. 17 S	7. 1. 11	7. 41 S	19. 5 S	1. 14	
7	0. 8. 17	3. 7	6. 29. 18	7. 49	18. 32	0. 45	
13	0. 17. 50	2. 51	6. 26. 14	7. 28	17. 6	0. 12	
19	0. 27. 25	2. 30	6. 22. 37	6. 37	14. 56	23. 31	
25	1. 7. 0	2. 5	6. 19. 17	5. 22	12. 31	22. 58	
♂ MARS.							
1	5. 29. 41	1. 23 N	6. 2. 55	0. 52 N	0. 22 S	23. 40	
7	6. 2. 22	1. 20	6. 6. 50	0. 50	1. 57	23. 33	
13	6. 5. 4	1. 16	6. 10. 46	0. 48	3. 32	23. 25	
19	6. 7. 47	1. 12	6. 14. 41	0. 45	5. 6	23. 17	
25	6. 10. 30	1. 8	6. 18. 39	0. 43	6. 39	23. 9	
♃ JUPITER.							
1	2. 19. 47	0. 26 S	3. 1. 0	0. 27 S	23. 1 N	17. 31	
7	2. 20. 18	0. 25	3. 1. 18	0. 27	23. 1	17. 11	
13	2. 20. 49	0. 25	3. 1. 29	0. 27	23. 1	16. 49	
19	2. 21. 20	0. 24	3. 1. 33	0. 27	23. 1	16. 27	
25	2. 21. 51	0. 23	3. 1. 29	0. 26	23. 1	16. 4	
♄ SATURN.							
1	4. 2. 23	0. 27 N	4. 7. 53	0. 26 N	18. 44 N	20. 9	
7	4. 2. 37	0. 28	4. 8. 22	0. 27	18. 38	19. 49	
13	4. 2. 50	0. 28	4. 8. 48	0. 28	18. 32	19. 29	
19	4. 3. 3	0. 29	4. 9. 11	0. 28	18. 26	19. 8	
25	4. 3. 17	0. 30	4. 9. 31	0. 29	18. 22	18. 46	
♅ GEORGIAN.							
1	5. 23. 14	0. 45 N	5. 24. 1	0. 43 N	3. 3 N	23. 6	
11	5. 23. 22	0. 45	5. 24. 37	0. 43	2. 48	22. 31	
21	5. 23. 30	0. 45	5. 25. 12	0. 43	2. 34	21. 56	

Days of the Week.	Days of the Month.	THE MOON'S							
		Longitude.				Latitude.			
		Noon.		Midnight.		Noon.		Midnight.	
		S.	D. M. S.	S.	D. M. S.	D. M. S.	S.	D. M. S.	S.
Tu.	1	7.	8. 42. 14	7.	16. 9. 10	0.	9. 52 S	0.	50. 38 S
W.	2	7.	23. 32. 28	8.	0. 51. 32	1.	30. 16	2.	8. 2
Th.	3	8.	8. 5. 47	8.	15. 14. 53	2.	43. 20	3.	15. 38
F.	4	8.	22. 18. 34	8.	29. 16. 45	3.	44. 32	4.	9. 43
Sa.	5	9.	6. 9. 25	9.	12. 56. 43	4.	30. 56	4.	48. 4
Sun.	6	9.	19. 38. 43	9.	26. 15. 42	5.	1. 1	5.	9. 47
M.	7	10.	2. 47. 54	10.	9. 15. 36	5.	14. 25	5.	14. 59
Tu.	8	10.	15. 39. 7	10.	21. 58. 45	5.	11. 37	5.	4. 29
W.	9	10.	28. 14. 49	11.	4. 27. 34	4.	53. 45	4.	39. 39
Th.	10	11.	10. 37. 22	11.	16. 44. 24	4.	22. 23	4.	2. 15
F.	11	11.	22. 48. 59	11.	28. 51. 20	3.	39. 28	3.	14. 22
Sa.	12	0.	4. 51. 42	0.	10. 50. 20	2.	47. 12	2.	18. 19
Sun.	13	0.	16. 47. 28	0.	22. 43. 18	1.	48. 1	1.	16. 37
M.	14	0.	28. 38. 7	1.	4. 32. 9	0.	44. 28 S	0.	11. 53 S
Tu.	15	1.	10. 25. 45	1.	16. 19. 10	0.	20. 48 N	0.	53. 16 N
W.	16	1.	22. 12. 44	1.	28. 6. 50	1.	25. 12	1.	56. 16
Th.	17	2.	4. 1. 50	2.	9. 58. 9	2.	26. 10	2.	54. 35
F.	18	2.	15. 56. 15	2.	21. 56. 35	3.	21. 16	3.	45. 55
Sa.	19	2.	27. 59. 35	3.	4. 5. 47	4.	8. 13	4.	27. 55
Sun.	20	3.	10. 15. 46	3.	16. 30. 1	4.	44. 45	4.	58. 24
M.	21	3.	22. 49. 4	3.	29. 13. 20	5.	8. 39	5.	15. 14
Tu.	22	4.	5. 43. 21	4.	12. 19. 32	5.	17. 54	5.	16. 28
W.	23	4.	19. 2. 11	4.	25. 51. 32	5.	10. 44	5.	0. 33
Th.	24	5.	2. 47. 42	5.	9. 50. 43	4.	45. 50	4.	26. 37
F.	25	5.	17. 0. 23	5.	24. 16. 19	4.	2. 57	3.	35. 3
Sa.	26	6.	1. 38. 1	6.	9. 4. 49	3.	3. 14	2.	27. 57
Sun.	27	6.	16. 35. 46	6.	24. 9. 53	1.	49. 46	1.	9. 23 N
M.	28	7.	1. 46. 0	7.	9. 22. 55	0.	27. 35 N	0.	14. 47 S
Tu.	29	7.	16. 59. 23	7.	24. 34. 9	0.	56. 51 S	1.	37. 44
W.	30	8.	2. 6. 7	8.	9. 34. 11	2.	16. 40	2.	52. 54
Th.	31	8.	16. 57. 30	8.	24. 15. 17	3.	25. 50	3.	54. 58

THE M O O N ' s							
Days of the Week.	Days of the Month.	Age.	Passage	Right Ascension.		Declination.	
			Merid.	Noon.	Midnight.	Noon.	Midnight.
		D.	H. M.	D. M.	D. M.	D. M.	D. M.
Tu.	1	4	1. 59	216. 16	223. 25	14. 34 S	17. 30 S
W.	2	5	2. 56	230. 45	238. 14	20. 8	22. 26
Th.	3	6	3. 55	245. 51	253. 35	24. 22	25. 53
F.	4	7	4. 56	261. 23	269. 11	26. 59	27. 38
Sa.	5	8	5. 57	276. 57	284. 36	27. 50	27. 37
Sun.	6	9	6. 55	292. 5	299. 22	26. 59	25. 59
M.	7	10	7. 50	306. 24	313. 13	24. 39	23. 1
Tu.	8	11	8. 40	319. 46	326. 5	21. 7	19. 0
W.	9	12	9. 26	332. 11	338. 5	16. 41	14. 13
Th.	10	13	10. 9	343. 49	349. 24	11. 38	8. 57
F.	11	14	10. 50	354. 52	0. 15	6. 13	3. 26 S
Sa.	12	15	11. 30	5. 34	10. 52	0. 37 S	2. 10 N
Sun.	13	16	12. 10	16. 10	21. 29	4. 57 N	7. 40
M.	14	17	12. 51	26. 52	32. 20	10. 19	12. 52
Tu.	15	18	13. 34	37. 54	43. 35	15. 18	17. 35
W.	16	19	14. 19	49. 24	55. 23	19. 43	21. 39
Th.	17	20	15. 6	61. 32	67. 51	23. 22	24. 51
F.	18	21	15. 57	74. 20	80. 58	26. 4	26. 59
Sa.	19	22	16. 50	87. 44	94. 37	27. 35	27. 52
Sun.	20	23	17. 44	101. 35	108. 35	27. 48	27. 23
M.	21	24	18. 38	115. 36	122. 35	26. 36	25. 28
Tu.	22	25	19. 31	129. 31	136. 23	23. 59	22. 11
W.	23	26	20. 23	143. 11	149. 54	20. 3	17. 38
Th.	24	27	21. 13	156. 32	163. 6	14. 56	12. 0
F.	25	28	22. 4	169. 39	176. 10	8. 52	5. 34 N
Sa.	26	29	22. 55	182. 43	189. 19	2. 9 N	1. 20 S
Sun.	27	30	23. 48	196. 0	202. 48	4. 50 S	8. 18
M.	28	1	0	209. 46	216. 54	11. 40	14. 52
Tu.	29	2	0. 44	224. 14	231. 47	17. 50	20. 31
W.	30	3	1. 43	239. 31	247. 25	22. 50	24. 46
Th.	31	4	2. 46	255. 27	263. 33	26. 14	27. 15

Days of the Week.	Days of the Month.	THE MOON'S				Proportional Logarithm.	
		Semidiameter.		Hor. Parallax.			
		Noon.	Midnight.	Noon.	Midnight.		
		M. S.	M. S.	M. S.	M. S.	Noon.	Midn.
Tu.	1	16.38	16.35	61. 2	60. 50	4697	4711
W.	2	16.31	16.26	60.35	60. 17	4729	4751
Th.	3	16.20	16.14	59.57	59.35	4775	4801
F.	4	16. 8	16. 1	59.11	58.46	4831	4861
Sa.	5	15.54	15.48	58.22	57.58	4891	4921
Sun.	6	15.41	15.35	57.34	57.12	4951	4979
M.	7	15.29	15.24	56.51	56.31	5005	5031
Tu.	8	15.19	15.14	56.13	55.55	5054	5077
W.	9	15.10	15. 6	55.39	55.24	5098	5118
Th.	10	15. 2	14.59	55.10	54.58	5136	5152
F.	11	14.56	14.53	54.47	54.38	5166	5178
Sa.	12	14.51	14.49	54.29	54.22	5190	5199
Sun.	13	14.47	14.46	54.16	54.12	5207	5213
M.	14	14.45	14.45	54. 9	54. 7	5217	5219
Tu.	15	14.45	14.45	54. 7	54. 8	5219	5218
W.	16	14.46	14.47	54.10	54.14	5215	5210
Th.	17	14.48	14.50	54.19	54.27	5203	5193
F.	18	14.53	14.56	54.37	54.48	5179	5165
Sa.	19	15. 0	15. 4	55. 1	55.17	5148	5127
Sun.	20	15. 9	15.14	55.35	55.55	5103	5077
M.	21	15.20	15.27	56.17	56.41	5049	5018
Tu.	22	15.34	15.41	57. 7	57.35	4985	4950
W.	23	15.49	15.57	58. 3	58.31	4915	4880
Th.	24	16. 5	16.12	59. 0	59.28	4844	4810
F.	25	16.20	16.26	59.55	60.20	4777	4747
Sa.	26	16.32	16.38	60.42	61. 1	4721	4698
Sun.	27	16.42	16.45	61.17	61.28	4679	4666
M.	28	16.47	16.47	61.34	61.34	4659	4659
Tu.	29	16.45	16.43	61.29	61.20	4665	4676
W.	30	16.39	16.35	61. 7	60.50	4691	4711
Th.	31	16.29	16.22	60.29	60. 4	4736	4766

DISTANCES of MOON's Center from SUN, and from STARS EAST of her.

Stars Names.	Days	Noon.		III ^h .		VI ^h .		IX ^h .		Midnight.		XV ^h .		XVIII ^h .		XXI ^h .	
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
α Aquilæ.	1	81. 34. 37	80. 2. 30	78. 30. 44	76. 59. 23	75. 28. 30	73. 58. 6	70. 59. 9	63. 44. 11	89. 24. 0	87. 39. 4	85. 54. 29	84. 10. 14	81. 53. 29	79. 31. 20	77. 23. 40	75. 25. 6
	2	69. 30. 36	68. 2. 48	66. 35. 45	65. 9. 32	63. 44. 11	60. 33. 53	58. 56. 18	57. 19. 16	55. 42. 47	54. 9. 27	52. 31. 32	50. 56. 51	49. 22. 47	47. 49. 22	46. 16. 41	44. 44. 46
Fomalhaut	2	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	89. 24. 0	87. 39. 4	85. 54. 29	84. 10. 14	81. 53. 29	79. 31. 20	77. 23. 40	75. 25. 6
	3	82. 26. 20	80. 42. 48	78. 59. 40	77. 16. 56	75. 34. 35	73. 52. 40	72. 11. 11	70. 30. 9	68. 49. 34	67. 9. 27	65. 29. 48	63. 50. 40	62. 12. 1	60. 33. 53	58. 56. 18	57. 19. 16
	4	68. 49. 34	67. 9. 27	65. 29. 48	63. 50. 40	62. 12. 1	60. 33. 53	58. 56. 18	57. 19. 16	55. 42. 47	54. 9. 27	52. 31. 32	50. 56. 51	49. 22. 47	47. 49. 22	46. 16. 41	44. 44. 46
	5	55. 42. 47	54. 6. 51	52. 31. 32	50. 56. 51	49. 22. 47	47. 49. 22	46. 16. 41	44. 44. 46	43. 13. 36	41. 43. 16	40. 13. 47	38. 45. 13	37. 17. 33	35. 48. 11	34. 18. 11	32. 49. 51
	6	43. 13. 36	41. 43. 16	40. 13. 47	38. 45. 13	37. 17. 33	35. 48. 11	34. 18. 11	32. 49. 51	31. 24. 11	29. 58. 52	28. 33. 56	27. 8. 9	25. 45. 17	24. 21. 42	22. 58. 41	21. 36. 16
α Arietis.	6	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	99. 20. 21	97. 43. 48	96. 7. 33	94. 31. 34	91. 53. 29	89. 31. 20	87. 23. 40	85. 1. 27
	7	92. 55. 53	91. 20. 28	89. 45. 19	88. 10. 26	86. 35. 49	84. 10. 26	82. 26. 20	80. 42. 48	79. 16. 56	77. 16. 56	75. 34. 35	73. 52. 40	72. 11. 11	70. 30. 9	68. 49. 34	67. 9. 27
	8	80. 19. 53	78. 46. 32	77. 13. 25	75. 40. 32	74. 7. 54	72. 35. 29	71. 3. 18	69. 31. 20	67. 9. 27	65. 29. 48	63. 50. 40	62. 12. 1	60. 33. 53	58. 56. 18	57. 19. 16	55. 42. 47
	9	67. 59. 36	66. 28. 6	64. 56. 49	63. 25. 45	61. 54. 55	60. 24. 17	58. 53. 52	57. 23. 40	55. 42. 47	54. 6. 51	52. 31. 32	50. 56. 51	49. 22. 47	47. 49. 22	46. 16. 41	44. 44. 46
	10	55. 53. 42	54. 23. 57	52. 54. 26	51. 25. 9	49. 56. 6	48. 26. 11	46. 56. 11	45. 26. 11	43. 56. 11	42. 26. 11	40. 56. 11	39. 26. 11	37. 56. 11	36. 26. 11	34. 56. 11	33. 26. 11
Aldebaran.	10	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	79. 55. 47	78. 25. 25	76. 55. 11	75. 25. 6	73. 55. 11	72. 25. 20	70. 55. 40	69. 25. 40
	11	73. 55. 9	72. 25. 20	70. 55. 40	69. 25. 40	67. 55. 40	66. 25. 40	64. 55. 40	63. 25. 40	61. 55. 40	60. 25. 40	58. 55. 40	57. 25. 40	55. 55. 40	54. 25. 40	52. 55. 40	51. 25. 40
	12	62. 0. 11	60. 31. 22	59. 2. 40	57. 34. 6	56. 5. 38	54. 37. 18	53. 9. 6	51. 41. 2	49. 52. 41	48. 23. 51	46. 54. 51	45. 25. 51	43. 56. 51	42. 27. 51	40. 58. 51	39. 29. 51
	13	50. 13. 5	48. 45. 16	47. 17. 36	45. 50. 4	44. 22. 41	42. 54. 26	41. 26. 21	39. 58. 21	38. 29. 21	36. 60. 21	35. 31. 21	34. 2. 21	32. 33. 21	30. 4. 21	28. 35. 21	26. 6. 21
	14	38. 34. 43	37. 8. 9	35. 41. 49	34. 15. 43	32. 49. 51	31. 24. 11	29. 58. 52	28. 33. 56	27. 8. 9	25. 45. 17	24. 21. 42	22. 58. 41	21. 36. 16	19. 53. 16	18. 24. 16	16. 55. 16
	15	27. 9. 22	25. 45. 17	24. 21. 42	22. 58. 41	21. 36. 16	19. 53. 16	18. 24. 16	16. 55. 16	15. 25. 16	13. 56. 16	12. 27. 16	10. 58. 16	9. 29. 16	7. 60. 16	5. 31. 16	3. 62. 16

[illegible]

CONFIGURATIONS of the SATELLITES of JUPITER
at XI o'Clock at *Night*.

1	2.○		.4	○	1.3				
2			.1	○	.4		2.	.3	
3	1.●		2.	○				.4	
4	3.●		.2	○	.1				.4
5			3.	1.	○		.2		.4
6			1.		○	2.1			4.
7			.3	.1	○				4.
8				.2	○	.3	1.		4.
9				.1	○		.2	.3	
10	4.○			2.	○	1.		3.	
11	1.○		.2		○		3.		
12			4.	3.	1.	○	.2		
13		4.	3.		○	.1	2.		
14	4.		.3	2. 1.	○				
15	.4			.2	○	1.			3.○
16		.4		.1	○		.2	.3	
17	2.●		.4		○	1.		3.	
18			.2	.4. 1.	○		3.		
19				3.	1.	○	.2	.4	
20			3.		○	.1	2.	.4	
21			.3	2. 1.	○				.4
22				.2	.3	○	.1		.4
23				.1	○		.2.3		4.
24	2.●				○	1.		3	4.
25			2.	.1	○		3.	4.	
26	1.●			3.	○	.2		4.	
27				4.	○	.1	2.		
28			.3		○				
29			4.	2. 1.	○				
30		4.		.2	.3	○	.1		
31		.4		.1	○		.2.3		
					○	2. 1.		.3	

Days of the Week.	Days of the Month.	Sundays, Holidays, Terms, &c.	Phases of the MOON.	
			D. H. M.	
			☾ First Quarter - - - -	3. 23. 34
			○ Full Moon - - - - -	12. 2. 8
			☾ Last Quarter - - - -	19. 23. 50
			● New Moon - - - - -	26. 15. 50
			Other Phenomena.	
			D. H. M.	
F.	1	All Saints.	1. 10. 2	☾ ☉ ♄
Sa.	2	Pr. Edward born.	1. 18. 3	☾ ☉ ♄
Sun.	3	24th Su. aft. Tr. Prs. So-	4. 9. 27	☾ ☉ ♄
M.	4	[phiab. On mor. of All S. 11.	6. 11. 29	☾ 1 ad ↓ ☾
Tu.	5	Powder Plot, 1605.	6. 12. 21	☾ 2 ad ↓ ☾
W.	6	Leon ^d . Mich. Ter. beg.	6. 13. 40	I. 3 ad ↓ ☾ * 8 ¹ / ₂ S
Th.	7		6. 14. 24 ¹ / ₂	E. 11 ¹ / ₂ S ☾'s C.
F.	8	Prs. Aug. Sophia born.	6. - - -	☾ Stationary.
Sa.	9		11. - - -	☾ ☉ ☽, * 30' South.
Sun.	10	25th Sunday after Trinity.	11. 21. 41	☾ ☉ ☽
M.	11	St. Martin.	14. 19. 17	☾ 125 ☽
Tu.	12	On mor. of St. M. 2 ret.	16. 17. 21	☾ ☉ ☽
W.	13	Britius. [Cam. T. div. m.	17. - - -	☾ ☉ ☽, * 2' South.
Th.	14		17. 13. 6	☾ 2 ad ↓ ☽
F.	15	Machutus.	19. 18. 14	☾ ☉ ☽
Sa.	16		21. 18. 9	☾ enters ♄
		[Linc.	21. - - -	☾ Stationary.
Sun.	17	26th Su. after. Tr. H. Bp.	22. 19. 20	☾ ☉ ☽
M.	18	In 8 days of St. M. 3 ret.	23. 8. 37	☾ ☉ ☽
Tu.	19		23. 16. 4 ¹ / ₂	I. ☾, * 1 ¹ / ₂ S. of ☾'s C.
W.	20	Edm. K. and Martyr.	23. 17. 3 ¹ / ₂	E. 4 ¹ / ₃ N.
Th.	21		24. 14. 54	☾ ☉ ☽
F.	22	Cecilia.	24. 23. 9	☾ ☉ ☽
Sa.	23	St. Clement.	28. 20. 7	☾ ☉ ♄
			29. 3. 53	☾ ☉ ♄
Sun.	24	27th Sunday after Trinity.	29. - - -	☾ ☉ ☽, * 5' South.
M.	25	D. of Glo. b. Cath. In 15 d.		
Tu.	26	[of St. Mart. 4 ret.		
W.	27			
Th.	28	Mich'. Term ends.		
F.	29			
Sa.	30	St. Andrew.		

Days of the Week.	Days of the Month.	THE S U N 's			Equation of Time.	Diff.
		Longitude.	R ^t . Ascen. in Time.	Declin. South.		
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	S.
F.	1	7. 9. 5.35	14.26.47,2	14.32.35	16.14,2	
Sa.	2	7.10. 5.46	14.30.43,2	14.51.40	16.14,8	0,6
Sun.	3	7.11. 5.58	14.34.40,0	15.10.31	16.14,5	0,3
M.	4	7.12. 6.12	14.38.37,6	15.29. 7	16.13,5	1,0
Tu.	5	7.13. 6.27	14.42.36,0	15.47.27	16.11,6	1,9
						2,6
W.	6	7.14. 6.44	14.46.35,2	16. 5.31	16. 9,0	
Th.	7	7.15. 7. 2	14.50.35,2	16.23.20	16. 5,5	3,5
F.	8	7.16. 7.22	14.54.36,1	16.40.51	16. 1,2	4,3
Sa.	9	7.17. 7.43	14.58.37,8	16.58. 6	15.56,1	5,1
Sun.	10	7.18. 8. 5	15. 2.40,3	17.15. 3	15.50,2	5,9
						6,8
M.	11	7.19. 8.29	15. 6.43,7	17.31.42	15.43,4	
Tu.	12	7.20. 8.55	15.10.47,9	17.48. 3	15.35,7	7,7
W.	13	7.21. 9.22	15.14.52,9	18. 4. 6	15.27,3	8,4
Th.	14	7.22. 9.51	15.18.58,8	18.19.49	15.18,0	9,3
F.	15	7.23.10.22	15.23. 5,6	18.35.14	15. 7,8	10,2
						11,1
Sa.	16	7.24.10.54	15.27.13,2	18.50.18	14.56,7	
Sun.	17	7.25.11.29	15.31.21,7	19. 5. 3	14.44,8	11,9
M.	18	7.26.12. 5	15.35.31,1	19.19.27	14.32,1	12,7
Tu.	19	7.27.12.43	15.39.41,3	19.33.30	14.18,5	13,6
W.	20	7.28.13.23	15.43.52,3	19.47.12	14. 4,0	14,5
						15,3
Th.	21	7.29.14. 4	15.48. 4,2	20. 0.33	13.48,7	
F.	22	8. 0.14.48	15.52.16,9	20.13.31	13.32,6	16,1
Sa.	23	8. 1.15.33	15.56.30,4	20.26. 8	13.15,7	16,9
Sun.	24	8. 2.16.20	16. 0.44,7	20.38.21	12.58,0	17,7
M.	25	8. 3.17. 8	16. 4.59,8	20.50.12	12.39,5	18,5
						19,2
Tu.	26	8. 4.17.58	16. 9.15,6	21. 1.39	12.20,3	
W.	27	8. 5.18.48	16.13.32,2	21.12.43	12. 0,3	20,0
Th.	28	8. 6.19.41	16.17.49,5	21.23.22	11.39,6	20,7
F.	29	8. 7.20.34	16.22. 7,6	21.33.37	11.18,2	21,4
Sa.	30	8. 8.21.28	16.26.26,2	21.43.27	10.56,2	22,0

III. NOVEMBER 1799. 123

Days	Time of ☉'s Semidiam. pass ^s Merid.	THE SUN'S			Place of the ☉'s Node.
	M. S.	Semi- diameter	Hourly Motion.	Logar. Distance.	S. D. M.
1	1. 6, 9	16. 11, 0	2. 30, 3	9. 996304	1. 6. 27
7	1. 7, 6	16. 12, 5	2. 30, 8	9. 995642	1. 6. 7
13	1. 8, 3	16. 13, 8	2. 31, 2	9. 995037	1. 5. 48
19	1. 9, 0	16. 15, 0	2. 31, 7	9. 994507	1. 5. 29
25	1. 9, 6	16. 16, 1	2. 32, 0	9. 994039	1. 5. 10

ECLIPSES of the SATELLITES of JUPITER.

I. Satellite.		II. Satellite.		III. Satellite.	
<i>Immersion.</i>		<i>Immersion.</i>			
Days.	H. M. S.	Days.	H. M. S.	Days.	H. M. S.
* 2	11. 21. 15	4	2. 39. 57	2	1. 53. 20 Im.
4	5. 49. 37	* 7	15. 58. 8	2	4. 37. 24 E.
6	0. 17. 54	11	5. 16. 13	9	5. 51. 43 Im.
7	18. 46. 11	* 14	18. 34. 7	* 9	8. 36. 53 E.
* 9	13. 14. 22	* 18	7. 51. 54	* 16	9. 49. 29 Im.
11	7. 42. 36	21	21. 9. 30	* 16	12. 35. 44 E..
13	2. 10. 43	* 25	10. 27. 0	* 23	13. 46. 39 Im.
14	20. 38. 51	28	23. 44. 22	* 23	16. 34. 1 E
* 16	15. 6. 54			* 30	17. 43. 15 Im.
* 18	9. 34. 58			30	20. 31. 42 E.
20	4. 2. 58			IV. Satellite.	
21	22. 30. 56				
* 23	16. 58. 50			* 4	10. 34 Inf. ♂
* 25	11. 26. 43			12	19. 52 Sup. ♂
27	5. 54. 35			21	1. 35 Inf. ♂
29	0. 22. 23			29	5. 41. 0 Im.
* 30	18. 50. 12			29	6. 18. 52 E.

THE PLANETS						
Days	Heliocentric		Geocentric		Declin.	Passage Merid.
	Long.	Lat.	Long.	Lat.		
	S. D. M.	D. M.	S. D. M.	D. M.		
♿ MERCURY.						
1	7.22.45	0.50 S	7.13.24	0.16 S	16.8 S	0.17
4	8.1.10	1.51	7.18.9	0.36	17.50	0.23
7	8.9.27	2.48	7.22.50	0.55	19.23	0.30
10	8.17.41	3.42	7.27.29	1.13	20.49	0.37
13	8.25.58	4.31	8.2.5	1.30	22.5	0.44
16	9.4.24	5.15	8.6.38	1.45	23.11	0.51
19	9.13.4	5.53	8.11.9	1.59	24.6	0.58
22	9.22.6	6.24	8.15.37	2.10	24.51	1.4
25	10.1.35	6.47	8.20.1	2.18	25.24	1.11
28	10.11.39	6.59	8.24.19	2.23	25.44	1.17
30	10.18.46	7.0	8.27.7	2.24	25.50	1.21
♀ VENUS.						
1	1.18.13	1.31 S	6.16.43	3.39 S	9.57 S	22.25
7	1.27.51	1.0	6.16.3	2.11	8.20	22.2
13	2.7.30	0.26 S	6.16.48	0.52 S	7.25	21.43
19	2.17.10	0.8 N	6.18.50	0.15 N	7.9	21.28
25	2.26.52	0.42	6.21.55	1.10	7.28	21.16
♂ MARS.						
1	6.13.42	1.3 N	6.23.17	0.40 N	8.26 S	22.59
7	6.16.28	0.58	6.27.16	0.37	9.56	22.50
13	6.19.15	0.54	7.1.17	0.35	11.24	22.41
19	6.22.3	0.49	7.5.18	0.32	12.49	22.32
25	6.24.52	0.44	7.9.21	0.29	14.10	22.22
♃ JUPITER.						
1	2.22.27	0.23 S	3.1.16	0.26 S	23.2 N	15.36
7	2.22.58	0.22	3.0.57	0.26	23.2	15.11
13	2.23.29	0.21	3.0.32	0.25	23.3	14.45
19	2.24.0	0.21	3.0.0	0.25	23.3	14.18
25	2.24.31	0.20	2.29.22	0.24	23.4	13.50
♄ SATURN.						
1	4.3.32	0.30 N	4.9.48	0.30 N	18.18 N	18.20
7	4.3.45	0.31	4.9.59	0.31	18.16	17.57
13	4.3.59	0.31	4.10.6	0.32	18.15	17.33
19	4.4.12	0.32	4.10.10	0.33	18.15	17.8
25	4.4.25	0.33	4.10.9	0.34	18.16	16.43
♅ GEORGIAN.						
1	5.23.38	0.46 N	5.25.47	0.44 N	2.21 N	21.16
11	5.23.46	0.46	5.26.15	0.44	2.10	20.37
21	5.23.54	0.46	5.26.40	0.45	2.1	19.57

Days of the Week.	Days of the Month.	THE MOON'S							
		Longitude.				Latitude.			
		Noon.		Midnight.		Noon.		Midnight.	
		S. D. M. S.	S. D. M. S.	S. D. M. S.	S. D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
F.	1	9. 1. 26. 58	9. 8. 32. 16	4. 19. 57 S	4. 40. 35 S				
Sa.	2	9. 15. 30. 48	9. 22. 22. 37	4. 56. 42	5. 8. 15				
Sun.	3	9. 29. 7. 49	10. 5. 46. 34	5. 15. 20	5. 18. 4				
M.	4	10. 12. 19. 12	10. 18. 46. 4	5. 16. 36	5. 11. 9				
Tu.	5	10. 25. 7. 36	11. 1. 24. 17	5. 1. 55	4. 49. 11				
W.	6	11. 7. 36. 34	11. 13. 45. 0	4. 33. 11	4. 14. 14				
Th.	7	11. 19. 50. 4	11. 25. 52. 14	3. 52. 33	3. 28. 27				
F.	8	0. 1. 51. 59	0. 7. 49. 47	3. 2. 12	2. 34. 6				
Sa.	9	0. 13. 46. 1	0. 19. 41. 5	2. 4. 28	1. 33. 36				
Sun.	10	0. 25. 35. 24	1. 1. 29. 14	1. 1. 47 S	0. 29. 22 S				
M.	11	1. 7. 22. 57	1. 13. 16. 51	0. 3. 21 N	0. 36. 0 N				
Tu.	12	1. 19. 11. 12	1. 25. 6. 16	1. 8. 19	1. 39. 56				
W.	13	2. 1. 2. 18	2. 6. 59. 31	2. 10. 32	2. 39. 48				
Th.	14	2. 12. 58. 12	2. 18. 58. 33	3. 7. 24	3. 33. 3				
F.	15	2. 25. 0. 52	3. 1. 5. 24	3. 56. 25	4. 17. 17				
Sa.	16	3. 7. 12. 26	3. 13. 22. 19	4. 35. 21	4. 50. 21				
Sun.	17	3. 19. 35. 18	3. 25. 51. 46	5. 2. 4	5. 10. 18				
M.	18	4. 2. 12. 3	4. 8. 36. 29	5. 14. 51	5. 15. 34				
Tu.	19	4. 15. 5. 27	4. 21. 39. 17	5. 12. 16	5. 4. 53				
W.	20	4. 28. 18. 18	5. 5. 2. 46	4. 53. 20	4. 37. 38				
Th.	21	5. 11. 52. 55	5. 18. 48. 52	4. 17. 46	3. 53. 54				
F.	22	5. 25. 50. 42	6. 2. 58. 19	3. 26. 11	2. 54. 55				
Sa.	23	6. 10. 11. 34	6. 17. 30. 4	2. 20. 28	1. 43. 20				
Sun.	24	6. 24. 53. 22	7. 2. 20. 47	1. 4. 4 N	0. 23. 23 N				
M.	25	7. 9. 51. 29	7. 17. 24. 30	0. 17. 59 S	0. 59. 13 S				
Tu.	26	7. 24. 58. 44	8. 2. 33. 3	1. 39. 28	2. 17. 56				
W.	27	8. 10. 6. 10	8. 17. 36. 56	2. 53. 50	3. 26. 30				
Th.	28	8. 25. 4. 11	9. 2. 26. 52	3. 55. 21	4. 19. 56				
F.	29	9. 9. 44. 6	9. 16. 55. 10	4. 39. 57	4. 55. 15				
Sa.	30	9. 23. 59. 32	10. 0. 56. 55	5. 5. 46	5. 11. 33				

		THE M O O N ' s					
Days of the Week.	Days of the Month.	Age.	Passage	Right Ascension.		Declination.	
			Merid.	Noon.	Midnight.	Noon.	Midnight.
			D. H. M.	D. M.	D. M.	D. M.	D. M.
F.	1	5	3.50	271.38	279.38	27.47 S	27.52 S
Sa.	2	6	4.50	287.29	295.7	27.29	26.41
Sun.	3	7	5.47	302.29	309.35	25.30	23.59
M.	4	8	6.40	316.23	322.55	22.11	20.8
Tu.	5	9	7.27	329.11	335.13	17.54	15.29
W.	6	10	8.11	341.2	346.41	12.57	10.18
Th.	7	11	8.52	352.12	357.36	7.35	4.50 S
F.	8	12	9.32	2.55	8.12	2.3 S	0.45 N
Sa.	9	13	10.12	13.28	18.46	3.32 N	6.16
Sun.	10	14	10.52	24.6	29.30	8.57	11.33
M.	11	15	11.34	35.0	40.38	14.3	16.25
Tu.	12	16	12.18	46.24	52.19	18.38	20.41
W.	13	17	13.4	58.25	64.40	22.31	24.8
Th.	14	18	13.54	71.6	77.41	25.29	26.33
F.	15	19	14.46	84.24	91.14	27.19	27.45
Sa.	16	20	15.39	98.8	105.4	27.51	27.36
Sun.	17	21	16.32	112.1	118.56	27.1	26.5
M.	18	22	17.23	125.46	132.32	24.48	23.12
Tu.	19	23	18.13	139.12	145.46	21.18	19.7
W.	20	24	19.2	152.14	158.38	16.39	13.58
Th.	21	25	19.50	164.58	171.16	11.5	8.1
F.	22	26	20.38	177.33	183.53	4.48 N	1.29 N
Sa.	23	27	21.28	190.17	196.48	1.53 S	5.17 S
Sun.	24	28	22.21	203.27	210.17	8.39	11.56
M.	25	29	23.18	217.21	224.39	15.4	18.0
Tu.	26	1	0	232.12	239.59	20.39	22.57
W.	27	2	0.20	248.0	256.11	24.51	26.19
Th.	28	3	1.24	264.28	272.46	27.18	27.47
F.	29	4	2.28	280.59	289.2	27.46	27.17
Sa.	30	5	3.29	296.52	304.25	26.21	25.2

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Days of the Week.	Days of the Month.	THE MOON'S				Proportional Logarithm.	
		Semidiameter.		Hor. Parallax.			
		Noon.	Midnight.	Noon.	Midnight.		
		M. S.	M. S.	M. S.	M. S.	Noon.	Midn.
F.	1	16. 15	16. 7	59. 38	59. 10	4798	4832
Sa.	2	15. 59	15. 52	58. 41	58. 13	4867	4902
Sun.	3	15. 44	15. 37	57. 45	57. 18	4937	4971
M.	4	15. 30	15. 23	56. 52	56. 28	5004	5035
Tu.	5	15. 17	15. 12	56. 5	55. 45	5064	5090
W.	6	15. 7	15. 2	55. 27	55. 10	5114	5136
Th.	7	14. 58	14. 55	54. 55	54. 43	5155	5171
F.	8	14. 52	14. 49	54. 33	54. 24	5185	5197
Sa.	9	14. 48	14. 46	54. 17	54. 12	5206	5213
Sun.	10	14. 45	14. 45	54. 8	54. 6	5218	5221
M.	11	14. 45	14. 45	54. 6	54. 7	5221	5219
Tu.	12	14. 45	14. 46	54. 9	54. 12	5217	5213
W.	13	14. 47	14. 49	54. 16	54. 22	5207	5199
Th.	14	14. 51	14. 53	54. 29	54. 37	5190	5179
F.	15	14. 56	14. 59	54. 47	54. 58	5166	5152
Sa.	16	15. 2	15. 6	55. 10	55. 24	5136	5118
Sun.	17	15. 10	15. 15	55. 39	55. 57	5098	5075
M.	18	15. 20	15. 26	56. 16	56. 37	5050	5023
Tu.	19	15. 32	15. 38	56. 59	57. 22	4995	4966
W.	20	15. 44	15. 51	57. 46	58. 11	4936	4905
Th.	21	15. 58	16. 5	58. 36	59. 2	4874	4842
F.	22	16. 12	16. 19	59. 27	59. 51	4811	4782
Sa.	23	16. 25	16. 30	60. 13	60. 34	4755	4730
Sun.	24	16. 35	16. 39	60. 51	61. 5	4710	4693
M.	25	16. 41	16. 43	61. 15	61. 21	4682	4675
Tu.	26	16. 43	16. 42	61. 22	61. 18	4673	4678
W.	27	16. 40	16. 36	61. 9	60. 56	4689	4704
Th.	28	16. 32	16. 26	60. 39	60. 18	4724	4750
F.	29	16. 19	16. 12	59. 54	59. 27	4778	4811
Sa.	30	16. 4	15. 57	58. 59	58. 31	4845	4880

Stars Names.	Days	Noon.		III ^h .		VI ^h .		IX ^h .		Midnight.		XV ^h .		XVIII ^h .		XXI ^h .	
		D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.
Regulus.	14	74.	4.32	72.	34.49	71.	5.0	69.	35.6	68.	5.7	66.	35.2	65.	4.51	63.	34.33
	15	62.	4.10	60.	33.40	59.	3.3	57.	32.20	56.	1.29	54.	30.32	52.	59.27	51.	28.14
	16	49.	56.53	48.	25.23	46.	53.45	45.	21.58	43.	50.3	42.	18.0	40.	45.48	39.	13.27
	17	37.	40.57	36.	8.17	34.	35.29	33.	2.33	31.	29.28	29.	56.15	28.	22.56	26.	49.29
Spica ♀	18	25.	15.55														
	19	79.	5.11	77.	30.3	75.	54.40	74.	19.1	72.	43.5	71.	6.53	69.	30.25	67.	53.37
	20	66.	16.32	64.	39.9	63.	1.27	61.	23.26	59.	45.6	58.	6.26	56.	27.27	54.	48.8
	21	53.	8.28														
The Sun.	17	-	-	-	-	-	-	-	-	119.	41.59	118.	15.15	116.	48.17	115.	21.4
	18	113.	53.37	112.	25.55	110.	57.56	109.	29.42	108.	1.11	106.	32.23	105.	3.17	103.	33.54
	19	102.	4.13	100.	34.14	99.	3.55	97.	33.17	96.	2.20	94.	31.2	92.	59.24	91.	27.25
	20	89.	55.6	88.	22.26	86.	49.23	85.	15.59	83.	42.13	82.	8.4	80.	33.31	78.	58.37
	21	77.	23.19	75.	47.39	74.	11.35	72.	35.9	70.	58.19	69.	21.5	67.	43.28	66.	5.28
	22	64.	27.4	62.	48.17	61.	9.7	59.	29.35	57.	49.40	56.	9.22	54.	28.42	52.	47.41
	23	51.	6.18	49.	24.35	47.	42.32	46.	0.10	44.	17.28	42.	34.28	40.	51.11	39.	7.36
	24	37.	23.45														
Fomalhaut.	28	66.	11.30	64.	25.55	62.	40.48	60.	56.12	59.	12.7	57.	28.37	55.	45.44	54.	3.30
	29	52.	21.55	50.	41.1	49.	0.56	47.	21.40	45.	43.12	44.	5.40	42.	29.6	40.	53.32
	30	39.	19.1														
α Arietis.	30 D.1	101.	33.40 88.2.14	99.	50.43	98.	8.12	96.	26.7	94.	44.27	93.	3.14	91.	22.27	89.	42.7

DISTANCES of MOON's Center from SUN, and from STARS WEST of her.

Stars Names.	Days	Noon.		III ^h .		VI ^h .		IX ^h .		Midnight.		XV ^h .		XVIII ^h .		XXI ^h .	
		D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.
The Sun.	1	52.	28. 57	54.	8. 15	55.	47. 6	57.	25. 31	59.	3. 29	60.	40. 59	62.	18. 3	63.	54. 41
	2	65.	30. 53	67.	6. 38	68.	41. 57	70.	16. 51	71.	51. 18	73.	25. 20	74.	58. 57	76.	32. 8
	3	78.	4. 55	79.	37. 17	81.	9. 14	82.	40. 49	84.	11. 59	85.	42. 47	87.	13. 12	88.	43. 16
	4	90.	12. 57	91.	42. 17	93.	11. 16	94.	39. 55	96.	8. 13	97.	36. 12	99.	3. 53	100.	31. 16
	5	101.	58. 20	103.	25. 6	104.	51. 36	106.	17. 50	107.	43. 47	109.	9. 29	110.	34. 56	112.	0. 9
	6	113.	25. 7	114.	49. 52	116.	14. 25	117.	38. 45	119.	2. 53	120.	26. 49				
Antares.	4	65.	5. 37	66.	42. 23	68.	18. 48	69.	54. 54	71.	30. 40	73.	6. 6	74.	41. 14	76.	16. 4
	5	77.	50. 35	79.	24. 49	80.	58. 47	82.	32. 29	84.	5. 54	85.	39. 3	87.	11. 58	88.	44. 39
	6	90.	17. 5	91.	49. 18	93.	21. 19	94.	53. 7	96.	24. 43	97.	56. 8	99.	27. 22	100.	58. 26
	7	102.	29. 19	104.	0. 3	105.	30. 37	107.	1. 3	108.	31. 20						
α Aquilæ.	7	-	-	-	-	-	-	-	-	63.	33. 38	64.	43. 40	65.	54. 2	67.	4. 43
	8	68.	15. 42	69.	26. 58	70.	38. 27	71.	50. 11	73.	2. 7	74.	14. 14	75.	26. 30	76.	38. 55
	9	77.	51. 29	79.	4. 9	80.	16. 56	81.	29. 49	82.	42. 47	83.	55. 49	85.	8. 54	86.	22. 1
	10	87.	35. 10														
Fomalhaut.	10	56.	48. 33	58.	12. 21	59.	36. 18	61.	0. 22	62.	24. 33	63.	48. 52	65.	13. 16	66.	37. 48
	11	68.	2. 25	69.	27. 8	70.	51. 56	72.	16. 49	73.	41. 47	75.	6. 50	76.	31. 58	77.	57. 10
	12	79.	22. 27	80.	47. 48	82.	13. 13	83.	38. 42	85.	4. 14						

Stars Names.	Days	Noon.		III ^h .		VI ^h .		IX ^h .		Midnight.		XV ^h .		XVIII ^h .		XX ^h .	
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
α Arietis.	12	-	-	-	-	-	-	-	-	21.45.33	27.25.1	23.4.57	24.25.19	25.46.34	25.46.34	25.46.34	25.46.34
	13	27.8.38	28.31.29	28.31.29	29.54.57	31.19.1	31.19.1	31.19.1	31.19.1	32.43.42	39.16.6	34.8.44	35.34.10	37.0.0	37.0.0	37.0.0	37.0.0
	14	38.26.13	39.52.42	39.52.42	41.19.29	42.46.33	42.46.33	42.46.33	42.46.33	44.13.54	51.29.28	45.41.30	47.9.20	48.37.24	48.37.24	48.37.24	48.37.24
	15	50.5.40	51.42.31	51.42.31	53.7.1	54.32.18	54.32.18	54.32.18	54.32.18	55.58.19	64.2.16	55.41.30	57.9.20	58.37.24	58.37.24	58.37.24	58.37.24
	16	20.18.52	21.42.31	21.42.31	23.7.1	24.32.18	24.32.18	24.32.18	24.32.18	25.58.19	34.2.16	27.25.1	28.52.18	30.20.8	30.20.8	30.20.8	30.20.8
Aldebaran.	17	31.48.31	33.17.15	33.17.15	34.46.24	36.15.56	36.15.56	36.15.56	36.15.56	37.45.52	46.5.40	39.16.6	40.46.40	42.17.34	42.17.34	42.17.34	42.17.34
	18	43.48.48	45.20.19	45.20.19	46.52.9	48.24.17	48.24.17	48.24.17	48.24.17	49.56.44	58.8.22	51.29.28	53.2.31	54.35.51	54.35.51	54.35.51	54.35.51
	19	56.9.30	57.43.26	57.43.26	59.17.40	60.52.13	60.52.13	60.52.13	60.52.13	62.27.5	70.10.16	64.2.16	65.37.46	67.13.36	67.13.36	67.13.36	67.13.36
	20	68.49.45	69.34.34	69.34.34	70.47.18	71.25.22	71.25.22	71.25.22	71.25.22	71.3.47	79.10.16	71.25.22	72.48.48	74.28.42	74.28.42	74.28.42	74.28.42
	21	24.32.11	26.9.34	26.9.34	27.47.18	29.25.22	29.25.22	29.25.22	29.25.22	31.3.47	39.16.6	32.42.33	34.21.40	36.1.8	36.1.8	36.1.8	36.1.8
Pollux.	22	37.40.58	39.21.10	39.21.10	41.1.43	42.42.40	42.42.40	42.42.40	42.42.40	44.23.58	52.17.47	46.5.40	47.47.44	49.30.12	49.30.12	49.30.12	49.30.12
	23	51.13.3	52.56.17	52.56.17	54.39.55	56.23.57	56.23.57	56.23.57	56.23.57	58.8.22	66.15.58	58.8.22	59.27.30	61.33.33	61.33.33	61.33.33	61.33.33
	24	-	-	-	-	-	-	-	-	60.27.30	68.13.36	60.27.30	61.33.33	63.25.32	63.25.32	63.25.32	63.25.32
	25	28.55.50	30.40.58	30.40.58	32.26.36	34.12.44	34.12.44	34.12.44	34.12.44	62.27.5	70.10.16	62.27.5	63.25.32	65.17.47	65.17.47	65.17.47	65.17.47
	26	43.10.13	44.58.59	44.58.59	46.48.7	48.37.37	48.37.37	48.37.37	48.37.37	64.2.16	72.48.48	64.2.16	65.37.46	67.13.36	67.13.36	67.13.36	67.13.36
Regulus.	27	57.50.21	59.41.49	59.41.49	61.33.33	63.25.32	63.25.32	63.25.32	63.25.32	66.15.58	74.28.48	66.15.58	67.13.36	69.2.55	69.2.55	69.2.55	69.2.55
	28	72.48.48	74.41.59	74.41.59	76.35.17	78.28.42	78.28.42	78.28.42	78.28.42	80.22.13	88.13.36	80.22.13	81.25.22	83.17.44	83.17.44	83.17.44	83.17.44
	29	-	-	-	-	-	-	-	-	81.25.22	89.10.16	81.25.22	82.29.28	84.23.58	84.23.58	84.23.58	84.23.58
	30	45.51.20	47.28.9	47.28.9	49.4.32	50.40.28	50.40.28	50.40.28	50.40.28	83.17.44	91.13.36	83.17.44	84.23.58	86.17.44	86.17.44	86.17.44	86.17.44
	D.1	58.33.27	59.41.49	59.41.49	61.33.33	63.25.32	63.25.32	63.25.32	63.25.32	85.17.47	93.10.16	85.17.47	86.17.44	88.13.36	88.13.36	88.13.36	88.13.36
The Sun.	31	-	-	-	-	-	-	-	-	86.17.44	94.23.58	86.17.44	87.28.42	89.2.55	89.2.55	89.2.55	89.2.55
	D.2	58.33.27	59.41.49	59.41.49	61.33.33	63.25.32	63.25.32	63.25.32	63.25.32	87.28.42	95.17.47	87.28.42	88.13.36	90.2.55	90.2.55	90.2.55	90.2.55

CONFIGURATIONS of the SATELLITES of JUPITER
at XI o'Clock at *Night*.

1	.4	2.	.1	O	3.
2	2.O	.4	3.	O I.	
3	1.O	3.	.4	O	2.
4	4O	.3	2. I.	O	
5		.2 .3	O	.1	.4
6		I.	O	2 O 3	.4
7			O	I O 2	.3 .4
8		2.	.1	O	3.
9	3●		.2	O I.	.4
10	1.O	3.	O	2.	4.
11		.3	I O 2	O	4.
12		.2 .3	O	.1	
13		4. I.	O	2 O 3	
14		4.	O	.1 .2 .3	
15	4.	2.	.1	O	3.
16	4.	.2	O	I.	3●
17	.4	3.	.1	O	.2
18	.4 .3		O		I ● 2 ●
19	.4	2 O 3	O	.1	
20		.4 I.	O	2 O 3	
21			O	.4 .1 2.	.3
22		2. .1	O		.4
23		.2	O	3. I.	.4
24		3.	.1	O	.2 .4
25	2●	3.	O	I.	4.
26	1.O	2 O 3	O		4.
27			I.	O 2 O 3	4.
28			O	.1 2 O 4 .3	
29			I O 2 .4	O	3.
30		4.	.2	O	I O 3

Days of the Week.	Days of the Month.	Sundays, Holidays, Terms, &c.	Phases of the MOON.	
			D. H. M.	
			☾ First Quarter - - -	3. 15. 26
			☉ Full Moon - - - -	11. 20. 55
			☾ Last Quarter - - -	19. 10. 41
			● New Moon - - - -	26. 2. 54
			Other Phenomena.	
			D. H. M.	
Sun.	1	Advent Sunday.	1. 17. 16	☾ ε ♄
M.	2		3. 18. 13	☾ 1 ad ↓ ☿
Tu.	3		3. 19. 4	☾ 2 ad ↓ ☿
W.	4		3. 19. 12	☾ 3 ad ↓ ☿
Th.	5		4. - -	♂ λ ♄, * 10' North.
F.	6	Nicholas,	8. - -	♀ x ♄, * 23' North.
Sa.	7		9. 4. 2	☾ δ ♄
Sun.	8	2d Sun. in Adv. Concept.	13. 22. 54	☾ ε ♄
M.	9	[of V. Mary.	14. 18. 31	☾ 2 ad ↓ ☿
Tu.	10		16. 23. 47	☾ η ♄
W.	11		17. - -	♂ Stationary.
Th.	12		17. - -	♂ x ♄, * 15' South.
F.	13	Lucy.	19. 17. 27	☾ η ♄
Sa.	14		20. 2. 40	☾ γ ♄
Sun.	15	3d Sunday in Advent.	20. 16. 27	☾ θ ♄
M.	16	☉ Sap. Camb. Ter. ends.	21. 6. 33	☉ enters ♄
Tu.	17	Oxford Term ends.	21. - -	♂ λ ♄, * 7' South.
W.	18		21. 23. 52	☾ λ ♄
Th.	19		22. 13. 18	☾ α ♄
F.	20		22. 23. 0	☾ 1 ad ↑ ♄
Sa.	21	St. Thomas.	23. 17. 50	☾ δ ♄
Sun.	22	4th Sunday in Advent.	25. - -	♂ β ♄, * 51' North.
M.	23		29. 2. 47	☾ ε ♄
Tu.	24		30. - -	♀ 4 ad ζ ♄, * 59½ S.
W.	25	Christmas-Day.	31. 2. 28	☾ 1 ad ↓ ☿
Th.	26	St. Stephen.	31. 3. 18	☾ 2 ad ↓ ☿
F.	27	St. John.	31. 3. 26	☾ 3 ad ↓ ☿
Sa.	28	Innocents.		
Sun.	29	1st Sunday aft. Christmas.		
M.	30			
Tu.	31	Silvester.		

Week. Days of the Week.	Days of the Month.	THE S U N ' s			Equation of Time. Sub.	Diff.
		Longitude.	R ^t . Ascen. in Time.	Declin. South.		
		S. D. M. S.	H. M. S.	D. M. S.	M. S.	S.
Sun.	1	8. 9. 22. 24	16. 30. 45, 5	21. 52. 52	10. 33, 5	23, 2
M.	2	8. 10. 23. 20	16. 35. 5, 4	22. 1. 52	10. 10, 3	23, 9
Tu.	3	8. 11. 24. 17	16. 39. 25, 9	22. 10. 27	9. 46, 4	24, 5
W.	4	8. 12. 25. 14	16. 43. 47, 0	22. 18. 35	9. 21, 9	25, 0
Th.	5	8. 13. 26. 13	16. 48. 8, 6	22. 26. 18	8. 56, 9	25, 5
F.	6	8. 14. 27. 11	16. 52. 30, 7	22. 33. 34	8. 31, 4	26, 0
Sa.	7	8. 15. 28. 11	16. 56. 53, 4	22. 40. 24	8. 5, 4	26, 5
Sun.	8	8. 16. 29. 11	17. 1. 16, 4	22. 46. 47	7. 38, 9	26, 9
M.	9	8. 17. 30. 12	17. 5. 40, 0	22. 52. 43	7. 12, 0	27, 3
Tu.	10	8. 18. 31. 13	17. 10. 3, 9	22. 58. 12	6. 44, 7	27, 7
W.	11	8. 19. 32. 15	17. 14. 28, 2	23. 3. 13	6. 17, 0	28, 1
Th.	12	8. 20. 33. 17	17. 18. 52, 9	23. 7. 47	5. 48, 9	28, 4
F.	13	8. 21. 34. 21	17. 23. 18, 0	23. 11. 53	5. 20, 5	28, 7
Sa.	14	8. 22. 35. 25	17. 27. 43, 3	23. 15. 32	4. 51, 8	29, 0
Sun.	15	8. 23. 36. 30	17. 32. 9, 0	23. 18. 43	4. 22, 8	29, 2
M.	16	8. 24. 37. 36	17. 36. 34, 9	23. 21. 26	3. 53, 6	29, 5
Tu.	17	8. 25. 38. 42	17. 41. 1, 0	23. 23. 41	3. 24, 1	29, 7
W.	18	8. 26. 39. 50	17. 45. 27, 3	23. 25. 27	2. 54, 4	29, 8
Th.	19	8. 27. 40. 58	17. 49. 53, 8	23. 26. 46	2. 24, 6	30, 0
F.	20	8. 28. 42. 7	17. 54. 20, 4	23. 27. 36	1. 54, 6	30, 1
Sa.	21	8. 29. 43. 17	17. 58. 47, 1	23. 27. 58	1. 24, 5	30, 1
Sun.	22	9. 0. 44. 28	18. 3. 13, 9	23. 27. 52	0. 54, 4	30, 2
M.	23	9. 1. 45. 39	18. 7. 40, 7	23. 27. 17	0. 24, 2	30, 1
Tu.	24	9. 2. 46. 51	18. 12. 7, 5	23. 26. 14	Add 5, 9	30, 1
W.	25	9. 3. 48. 3	18. 16. 34, 2	23. 24. 42	0. 36, 0	30, 0
Th.	26	9. 4. 49. 16	18. 21. 0, 8	23. 22. 42	1. 6, 0	29, 8
F.	27	9. 5. 50. 28	18. 25. 27, 3	23. 20. 14	1. 35, 8	29, 7
Sa.	28	9. 6. 51. 41	18. 29. 53, 6	23. 17. 18	2. 5, 5	29, 5
Sun.	29	9. 7. 52. 54	18. 34. 19, 7	23. 13. 54	2. 35, 0	29, 2
M.	30	9. 8. 54. 7	18. 38. 45, 6	23. 10. 2	3. 4, 2	28, 9
Tu.	31	9. 9. 55. 19	18. 43. 11, 1	23. 5. 42	3. 33, 1	

Days	Time of ☉'s Semidiam. pass ^s Merid.	THE SUN'S			Place of the ☉'s Node
	M. S.	Semi- diameter	Hourly Motion.	Logar. Distance.	S. D. M.
1	1. 10, 2	16. 17, 1	2. 32, 2	9.993615	1. 4. 51
7	1. 10, 7	16. 17, 9	2. 32, 5	9.993247	1. 4. 32
13	1. 11, 0	16. 18, 5	2. 32, 7	9.992965	1. 4. 13
19	1. 11, 2	16. 19, 0	2. 32, 8	9.992784	1. 3. 54
25	1. 11, 2	16. 19, 2	2. 32, 9	9.992682	1. 3. 35

ECLIPSES of the SATELLITES of JUPITER.

I. Satellite.		II. Satellite.		III. Satellite.	
<i>Immersion.</i>		<i>Immersion.</i>			
Days.	H. M. S.	Days.	H. M. S.	Days.	H. M. S.
* 2	13. 17. 56	* 2	13. 1. 38	7	21. 39. 21 Im.
* 4	7. 45. 42	6	2. 18. 47	8	0. 28. 55 E.
6	2. 13. 25	* 9	15. 35. 51	15	1. 35. 16 Im.
7	20. 41. 7	13	4. 53. 1	15	4. 25. 53 E.
* 9	15. 8. 49	* 16	18. 10. 0	* 22	5. 31. 6 Im.
* 11	9. 36. 31	<i>Emerfions.</i>		* 22	8. 22. 46 E.
13	4. 4. 11	* 20	9. 58. 5	* 29	9. 27. 3 Im.
14	22. 31. 51	23	23. 15. 11	* 29	12. 19. 47 E.
* 16	16. 59. 31	* 27	12. 32. 28	IV. Satellite.	
<i>Emerfions.</i>		31	1. 49. 40		
* 18	13. 38. 20			15	23. 28. 19 Im.
* 20	8. 6. 0			16	0. 33. 29 E.
22	2. 33. 42				
23	21. 1. 22				
* 25	15. 29. 1				
* 27	9. 56. 46				
29	4. 24. 29				
30	22. 52. 15				

THE PLANETS							
Days	Heliocentric		Geocentric		Declin.	Passage	
	Long.	Lat.	Long.	Lat.		Merid.	
	S. D. M.	D. M.	S. D. M.	D. M.		D. M.	H. M.
♿ Gr. Elong. 9°. <i>MERCURY.</i> Inf. ♂ 26°. 0 ^h .							
1	10. 22. 28	6. 57 S	8. 28. 29	2. 23 S	25. 51 S		1. 23
4	11. 4. 11	6. 39	9. 2. 26	2. 19	25. 45		1. 27
7	11. 16. 57	6. 1	9. 6. 1	2. 7	25. 27		1. 30
10	0. 0. 57	4. 58	9. 9. 5	1. 47	24. 57		1. 30
13	0. 16. 17	3. 29	9. 11. 21	1. 18	24. 17		1. 26
16	1. 2. 58	1. 35 S	9. 12. 26	0. 37 S	23. 30		1. 17
19	1. 20. 50	0. 36 N	9. 11. 59	0. 15 N	22. 41		1. 2
22	2. 9. 32	2. 49	9. 9. 48	1. 13	21. 53		0. 39
25	2. 28. 29	4. 45	9. 6. 13	2. 10	21. 10		0. 10
28	3. 17. 0	6. 8	9. 2. 10	2. 51	20. 36		23. 30
31	4. 4. 32	6. 52	8. 28. 47	3. 12	20. 16		23. 4
♀ Gr. Elong. 28°. <i>VENUS.</i>							
1	3. 6. 34	1. 15 N	6. 25. 51	1. 53 N	8. 14 S		21. 7
7	3. 16. 18	1. 46	7. 0. 26	2. 26	9. 21		20. 59
13	3. 26. 2	2. 14	7. 5. 33	2. 50	10. 43		20. 53
19	4. 5. 47	2. 38	7. 11. 6	3. 6	12. 14		20. 48
25	4. 15. 33	2. 57	7. 16. 59	3. 14	13. 49		20. 45
♂ <i>MARS.</i>							
1	6. 27. 43	0. 39 N	7. 13. 25	0. 26 N	15. 29 S		22. 12
7	7. 0. 35	0. 34	7. 17. 29	0. 22	16. 43		22. 2
13	7. 3. 29	0. 28	7. 21. 35	0. 19	17. 53		21. 52
19	7. 6. 24	0. 23	7. 25. 42	0. 15	18. 58		21. 42
25	7. 9. 20	0. 17	7. 29. 51	0. 12	19. 57		21. 33
♃ <i>JUPITER.</i> 8 17°. 19 ^h .							
1	2. 25. 2	0. 19 S	2. 28. 41	0. 24 S	23. 4 N		13. 21
7	2. 25. 33	0. 19	2. 27. 55	0. 23	23. 4		12. 51
13	2. 26. 3	0. 18	2. 27. 7	0. 22	23. 4		12. 22
19	2. 26. 34	0. 17	2. 26. 18	0. 21	23. 4		11. 52
25	2. 27. 5	0. 16	2. 25. 30	0. 20	23. 3		11. 21
♄ <i>SATURN.</i>							
1	4. 4. 38	0. 33 N	4. 10. 4	0. 35 N	18. 19 N		16. 17
7	4. 4. 52	0. 34	4. 9. 55	0. 36	18. 22		15. 50
13	4. 5. 5	0. 34	4. 9. 42	0. 37	18. 26		15. 23
19	4. 5. 18	0. 35	4. 9. 26	0. 38	18. 31		14. 55
25	4. 5. 31	0. 35	4. 9. 6	0. 39	18. 38		14. 27
♅ <i>GEORGIAN.</i> 18°. 16 ^h .							
1	5. 24. 2	0. 45 N	5. 26. 59	0. 45 N	1. 53 N		19. 16
11	5. 24. 10	0. 45	5. 27. 14	0. 45	1. 47		18. 33
21	5. 24. 17	0. 45	5. 27. 23	0. 45	1. 44		17. 50

		THE MOON'S			
		Longitude.		Latitude.	
Days of the Week.	Days of the Month.	Noon.	Midnight.	Noon.	Midnight.
		S. D. M. S.	S. D. M. S.	D. M. S.	D. M. S.
Sun.	1	10. 7. 47. 6	10. 14. 30. 9	5. 12. 50 S	5. 9. 41 S
M.	2	10. 21. 6. 16	10. 27. 35. 44	5. 2. 28	4. 51. 29
Tu.	3	11. 3. 58. 57	11. 10. 16. 30	4. 37. 1	4. 19. 24
W.	4	11. 16. 28. 53	11. 22. 36. 43	3. 58. 57	3. 35. 59
Th.	5	11. 28. 40. 37	0. 4. 41. 13	3. 10. 50	2. 43. 48
F.	6	0. 10. 39. 8	0. 16. 35. 2	2. 15. 10	1. 45. 15
Sa.	7	0. 22. 29. 30	0. 28. 23. 1	1. 14. 21	0. 42. 45 S
Sun.	8	1. 4. 16. 13	1. 10. 9. 35	0. 10. 45 S	0. 21. 20 N
M.	9	1. 16. 3. 32	1. 21. 58. 29	0. 53. 13 N	1. 24. 33
Tu.	10	1. 27. 54. 49	2. 3. 52. 47	1. 55. 3	2. 24. 23
W.	11	2. 9. 52. 44	2. 15. 54. 49	2. 52. 14	3. 18. 17
Th.	12	2. 21. 59. 14	2. 28. 6. 6	3. 42. 12	4. 3. 42
F.	13	3. 4. 15. 35	3. 10. 27. 42	4. 22. 30	4. 38. 19
Sa.	14	3. 16. 42. 35	3. 23. 0. 16	4. 50. 54	5. 0. 4
Sun.	15	3. 29. 20. 50	4. 5. 44. 23	5. 5. 36	5. 7. 24
M.	16	4. 12. 10. 58	4. 18. 40. 44	5. 5. 19	4. 59. 17
Tu.	17	4. 25. 13. 47	5. 1. 50. 17	4. 49. 18	4. 35. 23
W.	18	5. 8. 30. 20	5. 15. 14. 8	4. 17. 36	3. 56. 7
Th.	19	5. 22. 1. 49	5. 28. 53. 31	3. 31. 6	3. 2. 48
F.	20	6. 5. 49. 20	6. 12. 49. 22	2. 31. 32	1. 57. 40
Sa.	21	6. 19. 53. 35	6. 27. 1. 55	1. 21. 40	0. 44. 5 N
Sun.	22	7. 4. 14. 11	7. 11. 30. 4	0. 5. 28 N	0. 33. 31 S
M.	23	7. 18. 49. 10	7. 26. 10. 54	1. 12. 11 S	1. 49. 51
Tu.	24	8. 3. 34. 33	8. 10. 59. 16	2. 25. 46	2. 59. 16
W.	25	8. 18. 24. 7	8. 25. 48. 6	3. 29. 42	3. 56. 29
Th.	26	9. 3. 10. 7	9. 10. 29. 10	4. 19. 10	4. 37. 24
F.	27	9. 17. 44. 15	9. 24. 54. 31	4. 50. 58	4. 59. 45
Sa.	28	10. 1. 59. 13	10. 8. 57. 48	5. 3. 47	5. 3. 13
Sun.	29	10. 15. 49. 52	10. 22. 35. 11	4. 58. 14	4. 49. 8
M.	30	10. 29. 13. 45	11. 5. 45. 40	4. 36. 14	4. 19. 54
Tu.	31	11. 12. 11. 14	11. 18. 30. 48	4. 0. 29	3. 38. 24

		THE MOON'S					
Days of the Week.	Days of the Month.	Age.	Passage Merid.	Right Ascension.		Declination.	
				Noon.	Midnight.	Noon.	Midnight.
			D. H. M.	D. M.	D. M.	D. M.	D. M.
Sun.	1	6	4. 25	311. 40	318. 35	23. 22 S	21. 26 S
M.	2	7	5. 16	325. 12	331. 32	19. 15	16. 53
Tu.	3	8	6. 1	337. 36	343. 28	14. 21	11. 43
W.	4	9	6. 44	349. 8	354. 39	9. 0	6. 14
Th.	5	10	7. 24	0. 3	5. 23	3. 27 S	0. 38 S
F.	6	11	8. 3	10. 40	15. 57	2. 9 N	4. 54 N
Sa.	7	12	8. 42	21. 16	26. 37	7. 37	10. 15
Sun.	8	13	9. 23	32. 4	37. 38	12. 47	15. 13
M.	9	14	10. 6	43. 19	49. 10	17. 31	19. 39
Tu.	10	15	10. 51	55. 11	61. 23	21. 35	23. 19
W.	11	16	11. 40	67. 46	74. 19	24. 48	26. 0
Th.	12	17	12. 32	81. 1	87. 51	26. 55	27. 31
F.	13	18	13. 25	94. 48	101. 48	27. 46	27. 41
Sa.	14	19	14. 18	108. 48	115. 46	27. 14	26. 26
Sun.	15	20	15. 10	122. 41	129. 29	25. 17	23. 49
M.	16	21	16. 0	136. 11	142. 46	22. 2	19. 59
Tu.	17	22	16. 48	149. 12	155. 33	17. 40	15. 7
W.	18	23	17. 34	161. 47	167. 57	12. 22	9. 27
Th.	19	24	18. 21	174. 4	180. 12	6. 24 N	3. 14 N
F.	20	25	19. 8	186. 21	192. 34	0. 0	3. 16 S
Sa.	21	26	19. 57	198. 53	205. 21	6. 32 S	9. 45
Sun.	22	27	20. 50	212. 0	218. 53	12. 52	15. 50
M.	23	28	21. 47	226. 0	233. 24	18. 36	21. 6
Tu.	24	29	22. 49	241. 3	248. 57	23. 17	25. 4
W.	25	30	23. 53	257. 3	265. 17	26. 26	27. 20
Th.	26	1	0	273. 34	281. 49	27. 45	27. 40
F.	27	2	0. 57	289. 56	297. 51	27. 6	26. 5
Sa.	28	3	1. 56	305. 30	312. 51	24. 40	22. 54
Sun.	29	4	2. 51	319. 53	326. 36	20. 51	18. 33
M.	30	5	3. 40	333. 2	339. 12	16. 4	13. 26
Tu.	31	6	4. 25	345. 8	350. 53	10. 42	7. 54

Days of the Week.	Days of the Month.	THE MOON'S				Proportional Logarithm.	
		Semidiameter.		Hor. Parallax.			
		Noon.	Midnight.	Noon.	Midnight.	Noon.	Midn.
		M. S.	M. S.	M. S.	M. S.		
Sun.	1	15. 49	15. 41	58. 2	57. 33	4916	4952
M.	2	15. 33	15. 26	57. 5	56. 39	4987	5021
Tu.	3	15. 20	15. 13	56. 15	55. 52	5051	5081
W.	4	15. 8	15. 3	55. 31	55. 12	5108	5133
Th.	5	14. 58	14. 55	54. 56	54. 43	5154	5171
F.	6	14. 52	14. 49	54. 32	54. 23	5186	5198
Sa.	7	14. 48	14. 46	54. 17	54. 13	5206	5211
Sun.	8	14. 46	14. 46	54. 11	54. 11	5214	5214
M.	9	14. 46	14. 47	54. 12	54. 16	5213	5207
Tu.	10	14. 48	14. 50	54. 20	54. 26	5201	5194
W.	11	14. 52	14. 54	54. 33	54. 42	5185	5173
Th.	12	14. 57	15. 0	54. 51	55. 1	5161	5148
F.	13	15. 3	15. 6	55. 12	55. 24	5133	5118
Sa.	14	15. 9	15. 13	55. 37	55. 50	5100	5084
Sun.	15	15. 17	15. 21	56. 4	56. 19	5065	5046
M.	16	15. 25	15. 29	56. 35	56. 51	5026	5005
Tu.	17	15. 34	15. 39	57. 8	57. 26	4984	4961
W.	18	15. 44	15. 49	57. 44	58. 3	4938	4915
Th.	19	15. 54	15. 59	58. 22	58. 41	4891	4867
F.	20	16. 5	16. 10	59. 0	59. 19	4844	4821
Sa.	21	16. 14	16. 19	59. 36	59. 53	4800	4779
Sun.	22	16. 23	16. 26	60. 8	60. 20	4761	4747
M.	23	16. 29	16. 31	60. 29	60. 35	4736	4729
Tu.	24	16. 32	16. 32	60. 39	60. 39	4724	4724
W.	25	16. 31	16. 28	60. 35	60. 26	4729	4740
Th.	26	16. 25	16. 21	60. 14	59. 59	4754	4772
F.	27	16. 16	16. 10	59. 40	59. 19	4795	4821
Sa.	28	16. 3	15. 56	58. 55	58. 30	4850	4881
Sun.	29	15. 49	15. 42	58. 4	57. 38	4913	4946
M.	30	15. 35	15. 28	57. 12	56. 46	4979	5012
Tu.	31	15. 21	15. 15	56. 21	55. 58	5044	5073

DISTANCES of MOON's Center from SUN, and from STARS EAST of her.

Stars Names.	Days	Noon. D. M. S.	III ^h . D. M. S.	VI ^h . D. M. S.	IX ^h . D. M. S.	Midnight. D. M. S.	XV ^h . D. M. S.	XVIII ^h . D. M. S.	XXI ^h . D. M. S.
α Arietis.	1	88. 2. 14	86. 22. 47	84. 43. 47	83. 5. 12	81. 27. 3	79. 49. 20	78. 12. 2	76. 35. 10
	2	74. 58. 44	73. 22. 44	71. 47. 8	70. 11. 57	68. 37. 10	67. 2. 48	65. 28. 50	63. 55. 16
	3	62. 22. 5	60. 49. 17	59. 16. 51	57. 44. 48	56. 13. 7	54. 41. 49	53. 10. 53	51. 40. 18
	4	50. 10. 6							
Aldebaran.	4	80. 11. 44	78. 40. 23	77. 9. 18	75. 38. 28	74. 7. 53	72. 37. 32	71. 7. 25	69. 37. 31
	5	68. 7. 51	66. 38. 23	65. 9. 7	63. 40. 2	62. 11. 8	60. 42. 26	59. 13. 53	57. 45. 31
	6	56. 17. 19	54. 49. 15	53. 21. 20	51. 53. 35	50. 25. 59	48. 58. 30	47. 31. 9	46. 3. 58
	7	44. 36. 55	43. 10. 0	41. 43. 13	40. 16. 36	38. 50. 9	37. 23. 49	35. 57. 41	34. 31. 44
	8	33. 5. 59	31. 40. 23	30. 15. 7	28. 50. 9	27. 25. 30	26. 1. 17	24. 37. 30	23. 14. 11
Pollux.	9	21. 51. 25							
	9	64. 28. 53	62. 59. 59	61. 31. 0	60. 1. 57	58. 32. 50	57. 3. 38	55. 34. 22	54. 5. 0
	10	52. 35. 34	51. 6. 3	49. 36. 26	48. 6. 44	46. 36. 56	45. 7. 2	43. 37. 1	42. 6. 53
Regulus.	11	40. 36. 39							
	11	77. 9. 53	75. 39. 44	74. 9. 27	72. 39. 3	71. 8. 32	69. 37. 53	68. 7. 7	66. 36. 14
	12	65. 5. 13	63. 34. 4	62. 2. 49	60. 31. 26	58. 59. 55	57. 28. 16	55. 56. 28	54. 24. 33
	13	52. 52. 30	51. 20. 19	49. 48. 1	48. 15. 35	46. 43. 1	45. 10. 19	43. 37. 29	42. 4. 32
	14	40. 31. 27	38. 58. 15	37. 24. 56	35. 51. 31	34. 17. 59	32. 44. 19	31. 10. 35	29. 36. 46
	15	28. 2. 54	26. 28. 59	24. 55. 2	23. 21. 3	21. 47. 5			

Stars Names.	Days	Noon.		III ^h .		VI ^h .		IX ^h .		Midnight.		XV ^h .		XVIII ^h .		XXI ^h .	
		D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.	D.	M. S.
Spica μ	15	-	-	-	-	-	-	-	-	75.33.50	73.58.2	72.22.3	70.45.52				
	16	69.9.29	67.32.54	65.56.7	64.19.8	62.41.57	59.26.57	57.49.7	55.22.3	49.36.43	47.57.34	46.18.12	44.38.35				
	17	56.11.5	54.32.49	52.54.21	51.15.38	49.36.43	47.57.34	46.18.12	44.38.35	36.17.3	34.36.3	32.54.50	31.13.24				
	18	42.58.45	41.18.40	39.38.21	37.57.49	36.17.3	34.36.3	32.54.50	31.13.24	22.43.21							
	19	29.31.46	27.49.56	26.7.55	24.25.43												
The Sun.	17	120.17.47	118.47.12	117.16.22	115.45.18	101.54.33	100.20.56	98.47.4	97.12.55	114.14.0	112.42.28	111.10.40	109.38.38				
	18	108.6.20	106.33.47	105.0.58	103.27.53	89.18.6	87.42.18	86.6.13	84.29.51	101.54.33	100.20.56	98.47.4	97.12.55				
	19	95.38.30	94.3.49	92.28.51	90.53.37	76.23.49	74.45.47	73.7.28	71.28.54	89.18.6	87.42.18	86.6.13	84.29.51				
	20	82.53.12	81.16.16	79.39.4	78.1.35	63.12.7	61.32.0	59.51.39	58.11.5	76.23.49	74.45.47	73.7.28	71.28.54				
	21	69.50.3	68.10.57	66.31.35	64.51.59	49.45.9	48.3.24	46.21.30	44.39.28	63.12.7	61.32.0	59.51.39	58.11.5				
α Arietis.	22	56.30.17	54.49.17	53.8.6	51.26.43	100.38.36	98.53.53	97.9.32	95.25.33	49.45.9	48.3.24	46.21.30	44.39.28				
	23	42.57.18	41.15.2	39.32.40	38.33.17	86.51.11	85.9.29	83.28.12	81.47.19								
	27	-	-	-	-	73.29.15	71.50.55	70.13.4	68.35.33								
	28	93.41.56	91.58.40	90.15.47	88.33.17	60.34.38	58.59.45	57.25.17	55.51.16	100.38.36	98.53.53	97.9.32	95.25.33				
	29	80.6.51	78.26.49	76.47.12	75.8.1	48.7.37	46.36.12	45.5.13	43.34.40	86.51.11	85.9.29	83.28.12	81.47.19				
	30	66.58.30	65.21.53	63.45.42	62.9.57					73.29.15	71.50.55	70.13.4	68.35.33				
	31	54.17.40	52.44.30	51.11.46	49.39.29					60.34.38	58.59.45	57.25.17	55.51.16				
	J.1	42.4.33								48.7.37	46.36.12	45.5.13	43.34.40				

DISTANCES of MOON's Center from SUN, and from STARS *WEST* of her.

Stars Names.	Days	Noon.		III ^h .		VI ^h .		IX ^h .		Midnight.		XV ^h .		XVIII ^h .		XXI ^h .	
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
The Sun.	1	58. 33. 27	60. 6. 43	61. 39. 33	63. 11. 56	64. 43. 54	66. 15. 26	67. 46. 34	69. 17. 17	70. 47. 35	72. 17. 29	73. 47. 0	75. 16. 7	76. 44. 51	78. 13. 12	79. 41. 12	81. 8. 50
	2	82. 36. 7	84. 3. 4	85. 29. 42	86. 56. 1	88. 22. 1	89. 47. 42	91. 13. 7	92. 38. 14	94. 3. 4	95. 27. 38	96. 51. 57	98. 16. 1	99. 39. 51	101. 3. 27	102. 26. 50	103. 50. 0
	3	105. 12. 58	106. 35. 44	107. 58. 21	109. 20. 46	110. 43. 2	112. 5. 9	113. 27. 7	114. 48. 57	116. 10. 39	117. 32. 14	118. 53. 42	120. 15. 5	121. 36. 21	122. 57. 6	124. 18. 12	125. 39. 18
	4	99. 8. 51	100. 41. 6	102. 13. 7	103. 44. 53	105. 16. 24	106. 47. 42	108. 18. 47	109. 49. 39	111. 20. 19	112. 51. 1	114. 22. 1	115. 53. 1	117. 24. 1	118. 55. 1	120. 26. 1	121. 57. 1
	5	65. 41. 43	66. 52. 54	68. 4. 18	69. 15. 56	70. 27. 45	71. 39. 46	72. 51. 55	74. 4. 14	75. 16. 42	76. 29. 16	77. 41. 57	78. 54. 42	80. 7. 34	81. 20. 29	82. 33. 28	83. 46. 30
	6	84. 59. 34	86. 11. 18	87. 23. 1	88. 35. 1	89. 47. 1	90. 59. 1	92. 11. 1	93. 23. 1	94. 35. 1	95. 47. 1	96. 59. 1	98. 11. 1	99. 23. 1	100. 35. 1	101. 47. 1	102. 59. 1
Antares.	7	53. 55. 0	55. 18. 18	56. 41. 44	58. 5. 19	59. 29. 2	60. 52. 53	62. 16. 51	63. 40. 57	65. 5. 10	66. 29. 30	67. 53. 56	69. 18. 29	70. 43. 8	72. 7. 53	73. 32. 44	74. 57. 42
	8	76. 22. 45	77. 47. 54	79. 13. 10	80. 38. 32	82. 3. 59	83. 29. 1	84. 54. 1	86. 9. 1	87. 34. 1	88. 59. 1	90. 14. 1	91. 39. 1	92. 64. 1	93. 89. 1	94. 114. 1	95. 139. 1
	9	24. 16. 31	25. 38. 2	27. 0. 24	28. 23. 37	29. 47. 40	31. 12. 11	32. 37. 12	34. 2. 45	35. 28. 49	36. 55. 14	37. 81. 29	38. 107. 44	39. 133. 59	40. 160. 14	41. 186. 29	42. 212. 44
Fomalhaut.	10	47. 9. 36	48. 38. 31	50. 7. 41	51. 37. 5	53. 6. 42	54. 16. 3	55. 26. 1	56. 36. 1	57. 46. 1	58. 56. 1	59. 66. 1	60. 76. 1	61. 86. 1	62. 96. 1	63. 106. 1	64. 116. 1
	11	24. 16. 31	25. 38. 2	27. 0. 24	28. 23. 37	29. 47. 40	31. 12. 11	32. 37. 12	34. 2. 45	35. 28. 49	36. 55. 14	37. 81. 29	38. 107. 44	39. 133. 59	40. 160. 14	41. 186. 29	42. 212. 44
	12	47. 9. 36	48. 38. 31	50. 7. 41	51. 37. 5	53. 6. 42	54. 16. 3	55. 26. 1	56. 36. 1	57. 46. 1	58. 56. 1	59. 66. 1	60. 76. 1	61. 86. 1	62. 96. 1	63. 106. 1	64. 116. 1
α Arietis.	9	24. 16. 31	25. 38. 2	27. 0. 24	28. 23. 37	29. 47. 40	31. 12. 11	32. 37. 12	34. 2. 45	35. 28. 49	36. 55. 14	37. 81. 29	38. 107. 44	39. 133. 59	40. 160. 14	41. 186. 29	42. 212. 44
	10	47. 9. 36	48. 38. 31	50. 7. 41	51. 37. 5	53. 6. 42	54. 16. 3	55. 26. 1	56. 36. 1	57. 46. 1	58. 56. 1	59. 66. 1	60. 76. 1	61. 86. 1	62. 96. 1	63. 106. 1	64. 116. 1
	11	24. 16. 31	25. 38. 2	27. 0. 24	28. 23. 37	29. 47. 40	31. 12. 11	32. 37. 12	34. 2. 45	35. 28. 49	36. 55. 14	37. 81. 29	38. 107. 44	39. 133. 59	40. 160. 14	41. 186. 29	42. 212. 44
α Arietis.	12	47. 9. 36	48. 38. 31	50. 7. 41	51. 37. 5	53. 6. 42	54. 16. 3	55. 26. 1	56. 36. 1	57. 46. 1	58. 56. 1	59. 66. 1	60. 76. 1	61. 86. 1	62. 96. 1	63. 106. 1	64. 116. 1

Stars Names.	Days	Neon.	III ^h .	VI ^h .	IX ^h .	Midnight.	XV ^h .	XVIII ^h .	XXI ^h .
		D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.	D. M. S.
Aldebaran.	12	- - -	- - -	- - -	- - -	23. 8. 20	24. 34. 40	26. 1. 39	27. 29. 16
	13	28. 57. 27	30. 26. 11	31. 55. 24	33. 25. 4	34. 55. 11	36. 25. 37	37. 56. 23	39. 27. 29
	14	40. 58. 55	42. 30. 37	44. 2. 37	45. 34. 52	47. 7. 25	48. 40. 12	50. 13. 15	51. 46. 32
	15	53. 20. 4	54. 53. 50	56. 27. 50	58. 2. 4	59. 36. 32	61. 11. 14	62. 46. 9	64. 21. 18
	16	65. 56. 41							
Pollux.	16	21. 39. 30	23. 15. 58	24. 52. 41	26. 29. 37	28. 6. 48	29. 44. 13	31. 21. 52	32. 59. 45
	17	34. 37. 53	36. 16. 15	37. 54. 52	39. 33. 43	41. 12. 49	42. 52. 9	44. 31. 45	46. 11. 35
	18	47. 51. 41	49. 32. 3	51. 12. 40	52. 53. 34	54. 34. 44			
Regulus.	18	- - -	- - -	- - -	- - -	18. 29. 51	20. 8. 46	21. 48. 16	23. 28. 18
	19	25. 8. 51	26. 49. 54	28. 31. 23	30. 13. 19	31. 55. 40	33. 38. 21	35. 21. 24	37. 4. 49
	20	38. 48. 36	40. 32. 43	42. 17. 10	44. 1. 57	45. 47. 3	47. 32. 27	49. 18. 10	51. 4. 11
	21	52. 50. 30	54. 37. 7	56. 24. 1	58. 11. 11	59. 58. 39	61. 46. 23	63. 34. 22	65. 22. 36
	22	67. 11. 6	68. 59. 50	70. 48. 47	72. 37. 57	74. 27. 21			
Spica π	22	- - -	- - -	- - -	- - -	20. 30. 7	22. 18. 42	24. 7. 38	25. 56. 53
	23	27. 46. 26	29. 36. 13	31. 26. 14	33. 16. 28	35. 6. 53	36. 57. 27	38. 48. 7	40. 38. 54
	24	42. 29. 48	44. 20. 46	46. 11. 46	48. 2. 48	49. 53. 52	51. 44. 56	53. 35. 58	55. 26. 59
	25	57. 17. 56							
The Sun.	29	38. 13. 30	39. 46. 43	41. 19. 34	42. 52. 3	44. 24. 9	45. 55. 53	47. 27. 15	48. 58. 14
	30	50. 28. 50	51. 59. 3	53. 28. 54	54. 58. 23	56. 27. 29	57. 56. 14	59. 24. 37	60. 52. 39
	31	62. 20. 20	63. 47. 40	65. 14. 40	66. 41. 20	68. 7. 40	69. 33. 42	70. 59. 24	72. 24. 49
	J. 1	73. 49. 56							

CONFIGURATIONS of the SATELLITES of JUPITER
at X o'Clock at *Night*.

1		4.	3.	.1	○	.2	
2		4.	3.		○	1 6 2	
3	4.		.3	2.	.1	○	
4	.4				○		1 ● 2. ○ 3. ○
5		.4			○	.1	2. .3
6		.4		1 6 2	○		3.
7			.2	.4	○	.1	3.
8			.1	3.	○	2 6 4	
9			3.		○	1 6 2	.4
10			.3	2..	.1	○	.1 .4
11	1 ● 2. ○			.3	○		.4
12					○	.1	2. .3 4.
13				1. 2.	○		3. 4.
14			.2		○	.1	3. 4.
15				1. 3.	○	.2	4.
16			3.	4.	○	1 6 2	
17			.3	2.	.1	○	
18		4.		.3. 2.	○	1.	
19	4				○	2 6 3	1. ○
20	.4			1. 2.	○		.3
21		.4		.2	○	.1	3.
22		.4		1. 2.	○	.2	
23			2.	.4	○	1 6 2	
24			.3	2.	.1	○	.4
25				.3. 2.	○	1.	.4
26				.1	○	.3. 2.	.4
27	2 ●			1.	○		.3 .4
28			.2		○	.1	3. .4
29	3 ●			1.	○	.2	4.
30			3.		○	.1 2.	4.
31			.3	2.	.1	○	4.

II.

TABLES

TO

IMPROVE AND RENDER MORE GENERAL

THE

METHOD OF FINDING THE LATITUDE,

BY OBSERVING TWO ALTITUDES OF THE SUN,

AND THE INTERVAL OF TIME BETWEEN.

BY JOHN BRINKLEY, A. M.

ANDREW'S PROFESSOR OF ASTRONOMY, DUBLIN;

LATE FELLOW OF CAIUS COLLEGE, CAMBRIDGE.

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OF THE

COMMISSIONERS OF LONGITUDE.

1794.

A GENERAL REMARK,

SHEWING WHEN THE FOLLOWING

T A B L E S

ARE TO BE USED.

BY THE ASTRONOMER ROYAL.

IF the Latitude computed by the Rules given in the *Requisite Tables*, under the Restrictions in the Remarks at the End of the Examples, differs less than five Minutes from the Latitude by Account, it will be within a Minute of the true Latitude, and therefore no further Operation will be necessary. If the computed Latitude differs five Minutes or more from the Latitude by Account, the following Tables are here proposed to be used, instead of repeating the Operation by the *Requisite Tables*, as being more concise, but particularly as bringing out a true Result when the common Method fails, from the computed Latitude found by repeated Operations not approaching nearer and nearer, or, as it is commonly called, not converging to the true Latitude, or not sufficiently fast; which cannot be known till after the trouble of going through those Operations.

THE LATITUDE may generally be found from observing two ALTITUDES of the SUN and the INTERVAL OF TIME between, by one Operation, as is directed in the *Requisite Tables*, with the Assistance of the following Tables : but it is to be observed, that the Argument of Table I. is the true Latitude, and as only the Latitude by Account and the computed Latitude are known, there will be a Source of Error from this Cause when the Declination and Latitude are nearly equal and of the same Name ; however, the Error so arising, may in most Cases be corrected by the Directions hereafter given. This Method ought not to be depended on when the Latitude by Account and Declination of the same Name are so nearly equal that it is uncertain whether the true Latitude is greater or less than the Declination. There is also another Case in which the Method cannot be applied, taken Notice of in the Rules. In constructing the 2d and 3d Tables, regard has been paid to the proper Interval of Time between the Observations necessary to prevent the Latitude being too much affected by the Errors of the Observations and of the going of the Watch. The Limit of the Interval is supposed such as is directed by the Rules in Dr. MASKELYNE's *British Mariner's Guide*, and in the *Requisite Tables*; which Rules are deduced from two Theorems given in the *British Mariner's Guide*. Perhaps in the present improved State of Sextants and Watches, the Limit may be somewhat extended.

The second Table is not calculated beyond six Hours from the Meridian. When the Latitude and Declination are of the same Name, and both less than 4 or 5 Degrees, small Errors in the Altitudes and Interval will cause a very great Error in the Latitude, unless the Observations are made very near Noon, therefore in such Cases the Latitude found cannot be depended on : But this Defect must be common to all Methods.

TABLE I.

The Argument on the Top is the Degree of the Declination, and that on the Side is the Degree of Latitude.

The Sum or Difference of the Number found by this Table and Unity must be taken. The Sum to be used when the Declination, and Latitude are of different Denominations, and the Difference when of the same.

D.	1	2	3	4	5	6	7	8	9	10	11	12
1	In the first six Degrees of Latitude, divide the Declination by the Latitude, and the Quotient will be the Number of this Table.											
2												
3												
4												
5												
6												
7	,15	,29	,43	,57	,71	,86	1,00	1,14	1,29	1,43	1,58	1,73
8	,13	,25	,37	,50	,62	,75	,88	1,00	1,13	1,26	1,38	1,51
9	,11	,22	,33	,44	,55	,67	,78	0,89	1,00	1,11	1,22	1,34
10	,10	,20	,30	,40	,50	,60	,70	0,80	,90	1,00	1,10	1,20
11	,09	,18	,27	,36	,45	,54	,63	,72	,81	,90	1,00	1,09
12	,08	,16	,25	,33	,41	,49	,57	,66	,74	,83	,91	1,00
13	,08	,15	,23	,31	,38	,46	,54	,61	,68	,76	,84	,92
14	,07	,14	,21	,28	,35	,42	,49	,56	,63	,70	,78	,85
15	,07	,13	,19	,26	,32	,39	,46	,52	,59	,66	,72	,79
16	,06	,12	,18	,24	,31	,37	,43	,49	,55	,61	,68	,74
17	,06	,12	,17	,23	,28	,34	,40	,46	,52	,58	,64	,70
18	,05	,11	,16	,21	,27	,32	,37	,43	,48	,54	,59	,65
19	,05	,10	,15	,20	,25	,30	,35	,40	,46	,51	,56	,62
20	,05	,10	,14	,19	,24	,29	,34	,39	,43	,48	,53	,58
21	,04	,09	,14	,18	,22	,27	,32	,37	,41	,46	,50	,55
22	,04	,09	,13	,17	,21	,26	,30	,34	,39	,44	,49	,53
23	,04	,08	,12	,16	,20	,25	,29	,33	,37	,41	,45	,50
24	,04	,08	,12	,16	,20	,24	,28	,31	,35	,40	,44	,48
25	,04	,08	,11	,15	,18	,22	,26	,30	,34	,38	,42	,46
26	,04	,07	,11	,14	,17	,21	,25	,28	,32	,36	,40	,44
27	,03	,07	,10	,14	,17	,21	,24	,27	,31	,35	,38	,42
28	,03	,06	,10	,13	,16	,20	,23	,26	,30	,33	,36	,40
29	,03	,06	,09	,12	,15	,19	,22	,25	,28	,31	,34	,38
30	,03	,06	,09	,12	,15	,18	,21	,24	,27	,30	,33	,37
32	,03	,05	,08	,11	,14	,17	,20	,22	,25	,28	,31	,34
34	,03	,05	,08	,11	,13	,16	,18	,20	,23	,26	,29	,32
36	,02	,04	,07	,09	,11	,14	,16	,19	,22	,24	,26	,29
38	,02	,04	,07	,09	,11	,13	,15	,17	,20	,22	,24	,27
40	,02	,04	,06	,09	,11	,13	,15	,17	,19	,21	,23	,26
42	,02	,04	,06	,08	,10	,12	,14	,16	,18	,20	,22	,24
45	,02	,03	,05	,07	,09	,11	,12	,14	,16	,18	,20	,22
48	,02	,03	,05	,07	,08	,10	,11	,12	,14	,16	,18	,20
51	,01	,02	,04	,06	,07	,08	,10	,11	,13	,14	,16	,18
55	,01	,02	,04	,05	,06	,07	,08	,09	,11	,13	,14	,15
59	,01	,02	,03	,04	,05	,06	,07	,08	,10	,11	,12	,13
63	,01	,01	,02	,03	,04	,05	,06	,07	,08	,09	,10	,11
68	,01	,01	,01	,02	,03	,03	,04	,05	,06	,07	,08	,09
74	,00	,01	,01	,02	,02	,02	,03	,03	,04	,05	,05	,06
80	,00	,01	,01	,01	,02	,02	,02	,03	,03	,03	,04	,04

TABLE I. *continued.*

The Argument on the Top is the Degree of the Declination, and that on the Side is the Degree of Latitude.

The Sum or Difference of the Number found by this Table and Unity must be used. The Sum to be used when the Latitude and Declination are of different Denominations, and the Difference when of the same.

D.	13	14	15	16	17	18	19	20	21	22	23
1	In the first Six Degrees of Latitude, divide the Declination by the Latitude, and the Quotient will be the Number of this Table.										
2											
3											
4											
5											
6											
7	1,88	2,0	2,2	2,3	2,5	2,6	2,8	2,9	3,1	3,3	3,4
8	1,64	1,77	1,91	2,1	2,2	2,3	2,5	2,6	2,7	2,9	3,0
9	1,46	1,57	1,69	1,81	1,93	2,1	2,2	2,3	2,4	2,6	2,7
10	1,31	1,42	1,55	1,63	1,73	1,84	1,95	2,1	2,2	2,3	2,4
11	1,19	1,28	1,37	1,47	1,57	1,66	1,76	1,88	1,98	2,1	2,2
12	1,09	1,18	1,26	1,35	1,44	1,53	1,62	1,71	1,80	1,90	1,99
13	1,00	1,08	1,16	1,24	1,33	1,41	1,49	1,57	1,66	1,74	1,83
14	,93	1,00	1,07	1,15	1,23	1,30	1,38	1,46	1,54	1,62	1,70
15	,86	,93	1,00	1,06	1,14	1,21	1,28	1,36	1,43	1,51	1,59
16	,81	,87	,94	1,00	1,06	1,13	1,20	1,27	1,34	1,41	1,48
17	,75	,81	,88	,93	1,00	1,06	1,12	1,18	1,26	1,32	1,38
18	,71	,76	,83	,88	,94	1,00	1,06	1,12	1,19	1,24	1,30
19	,67	,72	,78	,83	,89	,94	1,00	1,06	1,12	1,17	1,23
20	,63	,68	,74	,79	,84	,89	,95	1,00	1,06	1,11	1,16
21	,60	,65	,70	,75	,80	,85	,90	,95	1,00	1,05	1,10
22	,57	,62	,66	,71	,75	,81	,85	,90	,95	1,00	1,05
23	,56	,59	,63	,67	,71	,77	,81	,86	,90	,95	1,00
24	,51	,56	,60	,64	,68	,73	,77	,82	,86	,91	,95
25	,49	,53	,57	,61	,66	,70	,74	,78	,82	,87	,91
26	,47	,51	,55	,58	,63	,67	,70	,74	,78	,83	,87
27	,45	,49	,53	,56	,60	,64	,67	,71	,75	,79	,83
28	,43	,47	,50	,54	,57	,61	,64	,68	,72	,76	,79
29	,42	,45	,48	,52	,55	,59	,62	,66	,69	,73	,76
30	,41	,43	,46	,50	,53	,57	,60	,64	,66	,70	,73
32	,37	,40	,43	,46	,49	,52	,55	,58	,61	,64	,67
34	,34	,36	,39	,42	,45	,48	,51	,54	,57	,59	,62
36	,32	,34	,37	,39	,42	,45	,47	,50	,53	,55	,58
38	,29	,32	,34	,36	,39	,41	,43	,46	,49	,51	,54
40	,27	,30	,32	,34	,36	,38	,40	,43	,45	,48	,50
42	,26	,28	,30	,32	,34	,36	,38	,40	,43	,45	,47
45	,23	,25	,27	,29	,31	,32	,34	,36	,38	,40	,42
48	,21	,22	,24	,26	,28	,30	,31	,32	,34	,36	,38
51	,19	,20	,22	,23	,25	,26	,28	,29	,31	,32	,34
55	,16	,17	,19	,20	,21	,22	,24	,25	,27	,28	,30
59	,14	,15	,16	,17	,18	,19	,20	,21	,23	,24	,26
63	,12	,13	,14	,15	,16	,17	,18	,19	,20	,21	,22
68	,09	,10	,11	,11	,12	,13	,14	,15	,16	,17	,18
74	,06	,06	,07	,07	,08	,08	,09	,09	,10	,11	,12
80	,04	,04	,04	,04	,05	,05	,06	,06	,07	,07	,08

TABLE II. *continued.*

h	h / 0.10	h / 0.20	h / 0.30	h / 0.40	h / 0.50	h / 1.0	h / 1.10	h / 1.20	h / 1.30	h / 1.40	h / 1.50	h / 2.0	h / 2.10	h / 2.20	h / 2.30	h / 2.40	h / 2.50	h / 3.0
2.10	,026	,051	,074	,096	,114	,131	,146	,158	,168	,175	,180	,185						
20	,029	,057	,082	,105	,128	,147	,165	,180	,192	,202	,210	,216	,219					
30	,032	,063	,092	,117	,142	,165	,185	,202	,218	,230	,241	,250	,255					
2.40	,036	,069	,101	,129	,158	,183	,206	,227	,245	,261	,274	,286	,294					
50	,039	,076	,111	,142	,174	,203	,230	,254	,275	,293	,310	,324	,335					
3.0	,043	,083	,121	,157	,192	,225	,258	,282	,307	,329	,349	,366	,380					
3.10		,091	,133	,174	,211	,248	,281	,313	,340	,367	,389	,411	,428					
20			,146	,192	,233	,274	,311	,348	,379	,410	,436	,462	,482	,503				
30				,211	,257	,303	,345	,386	,422	,457	,488	,518	,542	,566	,587			
3.40					,329	,336	,383	,429	,470	,510	,545	,580	,609	,638	,661	,684		
50						,372	,425	,477	,523	,569	,610	,651	,685	,719	,747	,775	,785	
4.0							,474	,533	,586	,638	,685	,732	,772	,813	,847	,880	,906	,932
4.10								,597	,659	,718	,773	,827	,874	,921	,961	,1,00	,1,03	,1,06
20									,741	,812	,875	,938	,994	,1,05	,1,08	,1,14	,1,18	,1,22
30										,926	,1,00	,1,07	,1,14	,1,20	,1,26	,1,32	,1,37	,1,41

T A B L E III.

To be used when the Observations are on different Sides of Noon.

The Argument on the Top is the Time nearest Noon, and that on the Side is the middle Time.

h	'	10'	20'	30'	40'	50'	1 ^h . 0'	1 ^h . 10'	1 ^h . 20'	1 ^h . 30'	1 ^h . 40'	1 ^h . 50'	2 ^h . 0'	2 ^h . 10'
0	10	,003	,005	,007	,009	,011	,013	,015	,017	,019	,021	,024	,026	
	20	,008	,011	,015	,019	,023	,027	,031	,035	,040	,044	,049	,054	,028
	30	,014	,020	,026	,032	,038	,044	,050	,056	,063	,070	,077	,084	,059
0	40	,022	,030	,038	,046	,053	,061	,069	,078	,087	,096	,105		
	50	,034	,043	,052	,062	,072	,082	,092	,103	,114	,125			
1	0	,046	,057	,068	,080	,091	,103	,115	,128	,141				
1	10	,059	,072	,085	,099	,113	,127	,141	,156					
	20	,075	,090	,105	,120	,136	,152	,168						
	30	,092	,109	,126	,143	,161	,179							
1	40	,113	,131	,149	,168	,187								
	50	,133	,153	,173	,194									
2	0	,156	,178	,200										
	10	,180	,192											

Divide the Sum or Difference found by Table I. by the Number from Table II. or III.

USE OF THE TABLES.

WITH the Latitude by Account compute the Latitude once, as directed in the *Requisite Tables*.

I. If the Observations are on the same Side of Noon.

When the Declination is greater than the Latitude and of the same Denomination; the Latitude by Account and that computed will be on the same Side of the true Latitude.

When the Latitude and Declination are of different Denominations, or when the Latitude is greater than the Declination, the Latitude computed and that by Account will be on different Sides of the true Latitude.

II. If the Observations are on different Sides of Noon, just the contrary will take place.

Take the Sum or Difference of the Number found by Table I. and Unity, according as the Latitude and Declination are of a Different or the same Denomination.

Divide this Sum or Difference by the Number taken from Table II. or III. Increase or diminish the Quotient by Unity according as the true Latitude is or is not between the Latitude by Account and that computed.

Lastly divide the Difference between the Latitude by Account and that computed by the above Quotient so increased or diminished, and the Result will be the Correction to be applied to the Latitude computed.

OBSERVATION I. When the Latitude and Declination are nearly equal, it will be proper to correct the Latitude twice: This is done by using the Latitude once corrected for the Argument of Table I. instead of the Latitude computed.

OBSERVATION II. When the Latitude computed is farther from the true Latitude than the Latitude by Account is: It is possible that the corrected Latitude may differ several Minutes from the Truth, if the Latitude by Account be far from the Truth. In such case use the Latitude corrected as the Latitude by Account and repeat the whole Operation.

OBSERVATION III. In the particular Case, when the Latitude per Account and that computed are on the same Side of the true Latitude, and the Quotient mentioned in the Rule happens to be nearly equal to Unity, this Method cannot be depended on.

* N. B. According as this Quotient is greater or less than Unity, the Latitude computed will or will not be nearer the true Latitude than the Latitude by Account is.

EXAMPLE

Divide the Sum or Difference found by Table I. by the Number from Table II. or III.

EXAMPLE I.

A. M. greater Alt. $50^{\circ} 1', 2$ } $1^h. 30'$ Star's declin. 14° N.
 A. M. less Altitude $41. 33, 2$ } Interval Lat. by Acc. $52^{\circ}. 50'$ N.
 Lat. computed $52^{\circ}. 5\frac{3}{4}$ Middle Time $1^h. 46', 7$
 Time nearest Noon $1. 1, 7$

By the Rule the true Latitude is between the Latitude by Account and that computed.

Table I. gives ,2 Table II. gives ,09

Difference $\frac{1}{,8}$

$$\frac{,8}{,09} = 9$$

Add $\frac{1}{}$

Sum 10

Lat. by Account $52^{\circ}. 50'$
 Lat. computed $52. 5\frac{3}{4}$

Difference $44\frac{1}{4}$

$$\frac{44\frac{1}{4}}{10} = 4', 4 \text{ Correction of Lat.}$$

$52. 5, 7$ Lat. computed.

$52. 10, 1$

N. B. True Latitude is $52^{\circ}. 10'$.

Times of Observ. $9^h. 30'.$ } A. M.
 $11. 0.$ }

EXAMPLE II.

A. M. Altitude $50^{\circ} 1', 2$ } $3^h. 30'$ Lat. by Acc. $51^{\circ}. 30'$ N.
 P. M. Altitude $41. 33, 2$ } Interval Declination 14 N.

By the Rule the true Latitude is not between the Latitude by Account and that computed.

Lat. computed $52^{\circ}. 5', 2$ Middle Time $0^h. 44\frac{1}{4}$ Tab. I. gives ,2
 Lat. by Account $51. 30$ T. nearest Noon $1. 0\frac{1}{2}$ 1

Difference $35, 2$

Difference $0, 8$
 Tab. III. gives ,08

$$\frac{35, 2}{9} = 3', 9 \text{ Corr}^n. \text{ of Latitude.}$$

$$\frac{0, 8}{, 08} = 10$$

$52. 5, 2$

Subtract 1

$52. 9, 1$ Latitude corrected.

Diff. 9

EXAMPLE III.

P. M. Altitude $70^{\circ} . 1'$ } Interval Lat. by Account $6^{\circ} . 30' N.$
 P. M. Altitude $35 . 21$ } $2^h . 20'$ Declination $5 . 30 N.$

By the Rule the true Latitude is between the Latitude by Account and that computed.

Lat. computed $8^{\circ} . 16'$ Middle Time $2^h . 29\frac{1}{2}$ Tab. I. gives ,66
 Lat. by Account $6 . 30$ T. nearest Noon $1 . 19\frac{1}{2}$ 1

Difference $1 . 46 = 106'$

Difference ,34
 Tab. II. gives ,20

$\frac{,34}{,2} = 1,7$

Add 1

Sum 2,7

$\frac{106'}{2,7} = 40'$ Correction of Lat.
 8.16

7.36 Lat. once correct^d.

Since in this Example the Declination and Latitude are nearly equal, the Latitude ought to be twice corrected.

Tab. I. entered with Lat. $7^{\circ} . 36'$ gives ,74

Difference — — $\frac{1,00}{0,26}$

$\frac{,26}{,2} = 1,3$

Add 1

Sum 2,3

$\frac{106'}{2,3} = 46'$ Correction of Latitude.
 8.16

7.30 Latitude twice corrected.

N. B. The true Latitude is $7^{\circ} . 30'$, and it would have required seven Operations by the common Method to have had the Latitude within $10'$ of the Truth.

EXAMPLE IV.

A. M. Altitude $75^{\circ} . 8',6$ } Interval Lat. by Account $10^{\circ} . 10' N.$
 P. M. Altitude $42 . 31,6$ } $4^h . 15'$ Declination $11 . 0 N.$

By the Rule the true Latitude is between the Latitude by Account and that computed.

Lat. computed $8^{\circ} 52'$ Mid. T. $1^h 6', 7$ T. nearest N. $0^h 59', 8$
 Lat. by Acc. 10.10 Table I. gives $1, 24$ Tab. III. gives 11

$$\begin{array}{r} 1.18 = 78' \\ \hline \text{Difference} \quad 0, 24 \end{array}$$

$$\begin{array}{r} .24 \\ ,11 \\ \hline \text{Add } 1 \\ \hline 3, 2 \end{array}$$

$$\begin{array}{r} 78' \\ 3, 2 \\ \hline = 24' \text{ correction of Lat.} \\ 8. 52 \end{array}$$

With Argum. of Lat. $9^{\circ} 16'$ T. I. gives $1, 19$ Lat. once corrected.

$$\begin{array}{r} \text{Difference} \quad \text{---} \quad \text{---} \quad \frac{1}{,19} \quad \frac{,19}{,11} = 1, 7 \\ \hline 2, 7 \end{array}$$

$$\begin{array}{r} 78' \\ 2, 7 \\ \hline = 28' \text{ Corr}^n. \text{ of Latitude} \end{array} \quad \begin{array}{r} 8. 52 \\ 28 \\ \hline \end{array}$$

$9. 20$ Latitude corrected.

N. B. True Latitude is the same.

EXAMPLE V.

A. M. Altitude $5^{\circ} 36', 1$ } Interval Sun's Declination 12°N.
 A. M. Altitude $45. 5, 7$ } 3^h Lat. by Account 27 N.

The true Latitude is between the Latitude computed and that by Account.

Lat. computed $30^{\circ} 5'$ Middle T. $4^h 25'$ Table I. gives $, 37$
 Lat. by Acc. 27 T. nearest N. $2. 55$ 1

$$\begin{array}{r} 3. 5 = 185' \\ \hline \end{array}$$

$$\begin{array}{r} \text{Difference} \quad 0, 63 \\ \text{Table II. gives} \quad 1, 41 \end{array}$$

$$\begin{array}{r} .63 \\ 1, 41 \\ \hline \text{Add } 1 \\ \hline \end{array}$$

$$\text{Sum} \quad 1, 45$$

$$\begin{array}{r} 185' \\ 1, 45 \\ \hline = 128' = 2^{\circ} 8' \text{ corr}^n. \text{ of Lat.} \\ 30. 5 \end{array}$$

$27. 57$ Lat. corrected.

In this Example the Latitude computed is twice as far from the Truth as the Latitude by Account is; and the Latitude by Account is nearly a Degree from the Latitude computed, the Operation ought therefore to be repeated using the last-found Latitude as the Latitude by Account.

$$\begin{array}{rcl} \text{The Lat. recomputed is } 28^{\circ} \cdot 7\frac{1}{2}' & & 28^{\circ} \cdot 7\frac{1}{2}' \text{ Lat. by Acc.} \\ \text{Latitude by Account } 27 \cdot 57 & \frac{10\frac{1}{2}'}{1,45} = 7\frac{1}{2}' & 7\frac{1}{2}' \text{ Correction.} \\ \hline \text{Difference} & 10\frac{1}{2}' & 28 \cdot 0 \text{ Lat. corr'd.} \end{array}$$

N. B. The true Latitude is $28^{\circ} \cdot 0'$. and the Times of Observation 6^{h} . A. M. and 9^{h} . A. M.

The Tables are calculated, and the Rules deduced from the following Formulas:

Let L = true Latitude, D = the Declination, T = the Time nearest Noon, and M = the Middle Time.

$$\text{Put } m = 1 \pm \frac{t, D}{t, L}$$

$\frac{s, T \times t, M - v s, T}{m = 1 \pm \frac{t, D}{t, L}}$, When both Observations are on the same Side of Noon.

$$m = 1 \pm \frac{t, D}{t, L}$$

$\frac{s, T \times t, M + v s, T}{m = 1 \pm \frac{t, D}{t, L}}$, When the Observations are on different Sides of Noon.

The Sign $+$ to be used when the Declination and Latitude are of different Denominations, and $\sim$ when of the same: then the Error in the computed Latitude = the Difference between the computed Latitude and Latitude by Account divided by $m \pm 1$;

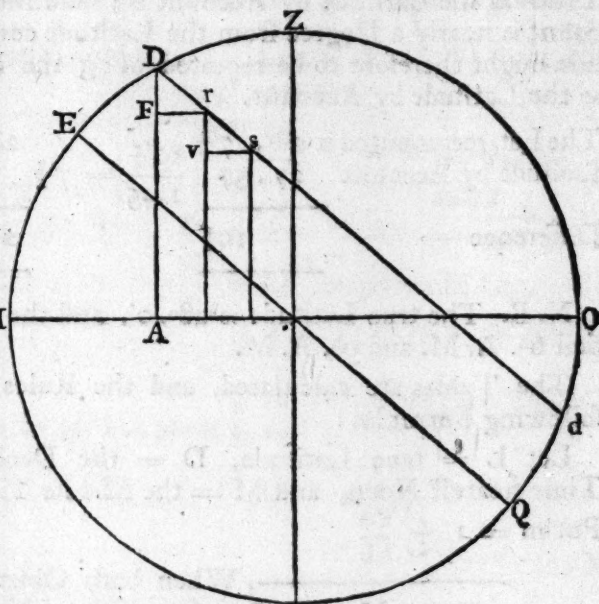
viz. by $m + 1$ { Observations on the same Side of Noon, and Latitude greater than the Declination or of a diff. Denomina.
Observations on different Sides of Noon, and Latitude less than the Declination and of the same Denomin.

viz. by $m - 1$ { Observations on same Side of Noon, and Latitude less than Declination and of same Denomination.
Observations on different Sides of Noon, and Latitude greater than Declination or of a different Denomina.

N. B. The Number found by Table I. is $\frac{t, D}{t, L}$, that found by Table II. is $s, T \times t, M - v s, T$ and that found by Table III. is $s, T \times t, M + v s, T$.

DEMONSTRATION.

HO, EQ, Dd, &c. represent the respective orthographic Projections of the Horizon, Equator, parallel of Declination, and on the Plane of the Meridian HEDZ O d Q and let r and s represent the Places of the Sun at the two Observations.



Put P = the Interval of Time between the Observations reduced into space, A and a for the Altitudes.

When the Observations are on the same Side of Noon, $M = T + \frac{1}{2} P$; also,

$$\begin{aligned} &rs : vr :: \text{rad.} : cs, L \\ &cs, T - cs, \overline{T + P} : rs :: \text{rad.} : cs, D \\ &\therefore cs, T - cs, \overline{T + P} : vr = s, A - s, a :: \text{rad.}^2 : cs, L \times cs, D \\ &\text{or } s, \frac{1}{2} P \times s, M : cs, \frac{A + a}{2} \times s, \frac{A - a}{2} :: \text{rad.}^2 : cs, L \times cs, D \\ &\text{or } s, M = cs, \frac{A + a}{2} \times s, \frac{A - a}{2} \times \text{rad.}^2. \end{aligned}$$

$$\begin{aligned} &s, \frac{1}{2} P \times cs, L \times cs, D \\ \text{But } T = M - \frac{1}{2} P \text{ and } Dr = \frac{vs, T \times cs, D}{\text{rad.}} \end{aligned}$$

$$DF : Dr :: cs, L : \text{rad.} \therefore DF = \frac{vs, T \times cs, D \times cs, L}{\text{rad.}^2}$$

and $s, \text{Mer. Alt.} = DF + s, A$

The Lat. = $\begin{cases} D \pm \text{computed Mer. Altitude when the Latitude and Declination are of the same Denomination.} \\ \text{Computed Mer. Altitude} - D \text{ when the Latitude and Declination are of different Denominations.} \end{cases}$

The above is the Substance of the Rule commonly given.

Now call c the Latitude thus found or the computed Latitude, then $\dot{c} = \pm$ Flux. Meridian Altitude, + when the Latitude is less than the Declination and of the same Name, otherwise —

$$\text{but Flux. Mer. Alt.} = \frac{s, \text{Mer. Alt.} \times \text{rad.}}{cs, \text{Meridian Alt.}} = \frac{DF}{s, L \pm D} \text{ (rad. being } = 1 \text{)}$$

$$\therefore \dot{c} = \pm \frac{DF}{s, L \pm D} = \pm \frac{cs, D}{s, L \pm D} \times \frac{\dot{T}}{vs, T \times cs, L + vs, T \times cs, L}$$

$$\text{It appears from above that } \dot{T} = \dot{M} = \frac{s, \dot{M}}{cs, M} = \frac{s, \dot{M}}{s, M} \times t, M =$$

$$- \frac{cs, \dot{L}}{cs, L} \times t, M = \dot{L} \times t, L \times t, M \therefore vs, \dot{T} = s, T \times \dot{T} = \dot{L}$$

$$\times t, L \times t, M \times s, T \text{ also } cs, \dot{L} = - \dot{L} \times s, L:$$

$$\text{Consequently } \dot{c} = \pm \frac{cs, D \times \dot{L}}{s, L \pm D} \times \frac{s, T \times t, M \times t, L \times cs, L - vs, T \times cs, L}{s, T \times t, M - vs, T}$$

$$= \pm \frac{cs, D \times s, L \times \dot{L}}{s, L \pm D} \times \frac{s, T \times t, M - vs, T}{s, T \times t, M - vs, T} = \pm \frac{cs, D \times s, L \times \dot{L}}{s, L \times cs, D \pm cs, L \times s, D}$$

$$\times \frac{s, T \times t, M - vs, T}{s, T \times t, M - vs, T} = \frac{\pm \dot{L}}{1 \pm \frac{t, D}{t, L}} \times \frac{s, T \times t, M - vs, T}{s, T \times t, M - vs, T}$$

$$= \pm \frac{\dot{L}}{m}, \text{ putting } m = \frac{1 \pm \frac{t, D}{t, L}}{s, T \times t, M - vs, T}$$

What is true for the Fluxions will be nearly so for the Increments, and will be sufficiently true for Nautical Purposes even when the Increments are large. Let r = Latitude by Account, and t = the true Latitude; then $t \sim r : t \sim c :: m : 1$

$$t \sim c : r \sim c :: 1 : m \pm 1, \text{ or } t \sim c = \frac{r \sim c}{m \pm 1} \text{ Q. E. D.}$$

In the same manner the Truth of the Formulas may be proved when the Observations are on different Sides of Noon.

1. The first part of the paper is devoted to a general
discussion of the principles of the theory of the
relativity of motion. It is shown that the laws of
physics are the same in all systems of reference
moving with uniform velocity relative to each other.
The principle of relativity is then stated in a
general form, and it is shown that it is in
accordance with the experimental facts.
2. In the second part of the paper, the theory of
the relativity of motion is applied to the theory of
the propagation of light. It is shown that the
velocity of light is the same in all systems of
reference moving with uniform velocity relative to
each other. This result is in accordance with the
experimental facts.
3. In the third part of the paper, the theory of
the relativity of motion is applied to the theory of
the propagation of matter. It is shown that the
velocity of matter is the same in all systems of
reference moving with uniform velocity relative to
each other. This result is in accordance with the
experimental facts.
4. In the fourth part of the paper, the theory of
the relativity of motion is applied to the theory of
the propagation of energy. It is shown that the
velocity of energy is the same in all systems of
reference moving with uniform velocity relative to
each other. This result is in accordance with the
experimental facts.
5. In the fifth part of the paper, the theory of
the relativity of motion is applied to the theory of
the propagation of information. It is shown that
the velocity of information is the same in all
systems of reference moving with uniform velocity
relative to each other. This result is in accordance
with the experimental facts.

EXPLANATION AND USE OF THE ARTICLES

CONTAINED IN THE
ASTRONOMICAL and NAUTICAL EPHEMERIS.

IT may be proper first to premise, that all the Calculations of the *Ephemeris* are made according to apparent Time by the Meridian of the *Royal Observatory at Greenwich*: And the Sun's, Planet's, and Moon's Places, with the Particulars depending on them in the II^d, IVth, Vth, VIth, and VIIth Pages of each Month, are computed to the Instant of apparent Noon, or that of the Sun's Center passing the Meridian of *Greenwich*.

Apparent Time, at any Place, is that deduced immediately from the Sun, whether from the Observation of his passing the Meridian, from his Altitude observed at a Distance from the Meridian, or from his observed Rising or Setting. This Time is different from that shewn by Clocks and Watches well regulated at Land, which is called equated or mean Time. This will be explained when we come to treat of the Equation of Time.

The Day is here supposed, according to the Method of Astronomers, to begin at noon or 12 Hours later than the civil Day of the same Denomination, and to be counted up to 24 Hours or the succeeding Noon, when the next Day begins. Thus the Day of the Month and the Hour of the Day are the same in this Method as in the civil Account at Noon, and from Noon till Midnight; but from Midnight till Noon they differ; for whereas in the civil Account a fresh Day is supposed to begin at Midnight, and the Hours to begin over again, in this Method the Day is still continued beyond Midnight, and the Reckoning of the Hours is continued up to 24. Thus the Distances put down to January 10, XV Hours belong to January 11 at Three in the Morning by Civil Reckoning.

There are XII. Pages for every Month. The first Column of the first Page of each Month contains the Day of the Week expressed concisely by the initial Letter or Letters, *Sun.* standing for Sunday, *M.* for Monday, *Tu.* for Tuesday, *W.* for Wednesday, *Th.* for Thursday, *F.* for Friday, and *Sa.* for Saturday: the second the Day

of the Month: the third Column exhibits the Sundays and Festivals of the Church of England, and other remarkable Days: The last Column shews at Top the Moon's Phases, or the Times of New and Full Moon, and of the first and last Quarter or two Quadratures with the Sun: Beneath are contained miscellaneous Phænomena, namely, Eclipses of the Sun and Moon, and Occultations of Planets or fixt Stars not less than the fourth Magnitude, by the Moon, as they should happen at *Greenwich* by the Tables; the Conjunctions of the Moon with all Stars not less than the fourth Magnitude, which can be Occultations any where on the Globe, between the Latitudes of 60° North and 40° South: The Entrance of the Sun into the several Signs, and any other remarkable Phænomena.

The Stars are expressed by *Bayer's* Characters of Reference. The Conjunction of the Moon or a Planet with a Star is denoted by prefixing the Character of the Moon or Planet to that of the Star, the Time of the Conjunction being placed immediately before. The Case is the same with respect to the Occultation of a Star or Planet by the Moon, only this is further distinguished by the Addition of Im. or Immersion, to signify the Disappearance behind the Moon; and Em. or Emerision, to signify the Re-appearance of the same. Thus $8^d. 16^h. 22'$ D 9 Ψ , signifies that the Moon will be in Conjunction with the Star 9 Ψ on the Eighth Day at $16^h. 22'$, exclusive of Parallax: And $10^d. 9^h. 14'$ Im. of ϵ Π . $10^d. 10^h. 23'$ Em. signifies that the Moon will eclipse ϵ Π on the 10th Day, the Immersion being at $9^h. 14'$, and the Emerision at $10^h. 23'$ apparent Time at *Greenwich*.

The Occultations set down are those only visible at *Greenwich*; the Circumstances of which will commonly not differ very widely in most Parts of the Kingdom; but in very distant Places they will differ very much, owing to the Change of the Moon's Parallax, or it may become no Occultation at all: The like may be said of Eclipses of the Sun.

An Eclipse of the Sun, or Occultation of a fixt Star by the Moon, if observed in a Place whose Latitude and Longitude are well determined, may be applied to the Correction of the Lunar Tables; but if made in a Place whose Latitude only is well known, may be applied to the Determination of the Longitude of the Place; but for this Purpose an accurate Calculation must be made of the Moon's Parallaxes in Longitude and Latitude, which makes this Method of settling the Longitude of Places, though a very accurate one, less convenient in Use for Persons not much versed in astronomical Calculations. However, this ought not to discourage Travellers or Mariners from endeavouring to make these Observations as often and as carefully as possible, when they shall happen to be at any Place whose Longitude they have Reason to think has not been well settled; since the necessary Calculations may be made at any time afterwards by themselves, at Leisure, or referred to the Skill of Astronomers and Mathematicians.

Eclipses of the Moon are not liable to this Inconvenience; the Longitude of any Place, where the Eclipse has been observed, being deduced immediately by taking the Difference of the Time of the Observation and that set down in the *Ephemeris*, and converting it into Degrees, at the Rate of 15° to One Hour, &c. or more briefly by Table XIV. Page 38 of the 2d Edition of the Tables requisite to be used with the *Ephemeris*. But, as the Beginning or Ending of an Eclipse of the Moon cannot be generally observed nearer than One Minute, and sometimes Two or Three Minutes of Time, the Longitudes of Places cannot be certainly determined by this Method from a single Observation of the Beginning or End nearer than a Degree. Even this Point of Exactness will often be of great Service. If both the Beginning and End of the Eclipse be observed, a greater Degree of Exactness will be attained.

The Conjunctions of the Moon with the Planets, or fixt Stars not less than the fourth Magnitude, which may prove Occultations in some inhabited Parts of the Globe, are evidently designed to instruct Mariners or Travellers to look out frequently for such Observations; which if they happen to prove Occultations, and are carefully observed, will afford a certain means of determining the Longitude of the Place of Observation.

The Two first Columns of the Second Page of the Month contain the Day of the Week and Month as before; next follow the Sun's Longitude, right Ascension in Time, Declination, and the Equation of Time with its Difference from Day to Day.

The Longitude of the Sun is made use of in most of the succeeding Calculations of the *Ephemeris*, and may serve either to verify them, or to make other similar Calculations at a different Time of the Day. Particularly it may serve, with the Help of the Moon's Longitude, to find the Distance of the Moon from the Sun at any Time, independent of the Distances contained in the VIIIth, IXth, Xth, and XIth pages of the Month. To find the Sun's Longitude at any Time different from Noon, Proportion must be made according to its daily Increase: Saying, as 24^h is to the Hour from Noon reckoned by the Meridian of *Greenwich*, so is the Daily Variation of the Sun's Longitude, to a fourth Number; which added to the Sun's Longitude at the preceding Noon, gives the true Longitude at the given Time.

If the Time given be that of a Meridian different from *Greenwich*, it must be first reduced thereto, by adding or subtracting the Difference of Longitude turned into Time (at the Rate of One Hour to 15° . and One Minute of Time to 15 Minutes, or more briefly by Table XIV. Page 38, of the *Requisite Tables*) according as the Place is to the West or to the East of *Greenwich*. Example: Suppose any one should want to know the Sun's Longitude, January 19, 1767, at $4^h. 35'$, being in $21^{\circ}. 15'$ Longitude East of *Greenwich*. The Difference of Longitude turned into Time is $1^h. 25'$ which subtracted from $4^h. 35'$ because the Place is East of *Greenwich*, leaves $3^h. 10'$ for the Time re-

duced to the Meridian of *Greenwich*. The Sun's Longitude the preceding Noon is $9^{\circ}.29'.18''.2''$, and the following Noon it is $10^{\circ}.0'.19''.4''$, the Difference is, $1^{\circ}.1'.2''$, or $61'.2''$, the daily variation. Then say as 24^h . is to $3^h.10'$, so is $61'.2''$, to $8'.3''$, which added to $9^{\circ}.29'.18''.2''$, the Sun's Longitude on the preceding Noon, gives $9^{\circ}.29'.26''.5''$, the Sun's Longitude at the Time given. In like Manner any other of the following Articles is to be found by the Help of the *Ephemeris*.

The Sun's Longitude serves also to compute the Aberration of the fixt Stars and Planets.

The sun's right Ascension in Time is useful to the practical Astronomer in regular Observatories, who adjusts his Clocks by fidereal Time. It is also useful to him for converting apparent into fidereal Time; as suppose that of an Eclipse of Jupiter's Satellites, in order to know at what Time it may be expected to happen by his Clocks: For this Purpose the Sun's right Ascension at the preceding Noon, together with the Increase of right Ascension from Noon, must be added to the apparent Time of the Phenomenon set down in the *Ephemeris*.

The Sun's right Ascension in Time serves also to compute the apparent Time of a known Star's passing the Meridian: Thus, subtract the Sun's right Ascension in Time at Noon from the Star's right Ascension in Time, the Remainder is the apparent Time of the Star's passing the Meridian nearly; from which the proportional Part of the daily Increase of the Sun's right Ascension for this apparent Time from Noon being subtracted, leaves the correct Time of the Star's passing the Meridian.

Hence the apparent Time may be found from an observed Altitude of a known fixt Star, suppose one contained in Page 7, of the *Requisite Tables*; as will be explained hereafter.

The Sun's right Ascension in Time is also useful for computing the Time of the Moon and Planets passing the Meridian, as will be shewn under their proper Articles.

The Sun's Declination is necessary to find the Latitude, whether at Sea or Land, from the Meridian Altitude observed; it is also requisite for finding the Latitude from Two Altitudes observed with the Interval of Time measured by a Watch; it serves for computing the Sun's Azimuth, having his Altitude and the Latitude of the Place given, in order to find the Variation of the Compass; it is required, jointly with the Latitude of the Place and the Sun's horary Angle, to compute his Altitude, if neglected to be observed at the Time of taking the Moon's Distance from the Sun for finding the Longitude, being useful to facilitate the Calculation of the Effect of Refraction and Parallax upon the Distance; it is also necessary to calculate the apparent Time from an observed Altitude of the Sun at a Distance from the Meridian, the Latitude being given; or to compute the Time of the Sun's Setting or Rising; which, though a less accurate Method than the former of obtaining the Time, may yet be useful when that cannot be had. For any of these Purposes the Sun's Declination must

be found to the Time given nearly, reduced to the Meridian of *Greenwich*, making Proportion according to the daily Increase or Decrease, in like manner as was shewn with respect to the Sun's Longitude.

The Equation of Time is a Correction, which added to, or subtracted from the apparent Time (according to its Title at the top of the Column) gives equated or mean Time, or that which should be shewn by a good Clock or Watch. Apparent Time is that which takes its Beginning from the Passage of the Sun's Center over the Meridian of any Place; and had the Sun no Motion in the *Ecliptic*, or was his Motion reduced to the Equator or in right Ascension uniform, he would always return to the Meridian after equal Intervals of Time. But his apparent Motion in the *Ecliptic* being continually varying, and his Motion in right Ascension being rendered further unequal on account of the Obliquity of the *Ecliptic* to the Equator, from these Causes it arise that the Intervals of his Return to the Meridian become unequal, and the Sun will gradually come too slow or too soon to the Meridian for an equable Motion, such as that of Clocks and Watches ought to be.

This Retardation or Acceleration of the Sun's coming to the Meridian is called the Equation of Time, and is contained in the last Column but One of Page II. and when applied according to its Title to the apparent Time, or that deduced immediately from the Sun, gives the mean or equated Time, whence the Error of a Clock or Watch may be found, and, if required, it may be corrected.

If it be proposed to convert mean Time into apparent, this is done by a contrary Process, by applying the Equation of Time to the mean Time given, with its Title or Sign changed; *viz.* subtracting instead of adding, and adding instead of subtracting.

The Equation of Time being set down in the *Ephemeris* for Noon at *Greenwich*, Proportion must be made, according to the daily Difference, to find what it should be at any given Time reduced to the same Meridian, as in the preceding Articles. The last Column of this Page, containing the daily Differences of the Equation, is designed for this Purpose.

As often as it may be required to make any Calculations from astronomical Tables, and the Time given be apparent Time; it is necessary first to apply the Equation of Time thereto to convert it into mean Time, the Tables being disposed according to mean Motions. Thus the Articles contained in the *Ephemeris* answering to Noon were computed to 0^h. increased, or 24 Hours of the preceding Day diminished, by the Equation of Time: And the moon's places set down for midnight were computed to 12^h. increased or diminished by the Equation of Time.

What has been shewn concerning the Equation of Time chiefly respects the Astronomer, the Mariner having nothing to do with it in computing his Longitude from the Moon's Distances from the Sun and Stars observed at Sea with the Help of the *Ephemeris*, all the

Calculations thereof being adapted to apparent Time, the same which he will obtain by the Altitudes of the Sun or Stars in the manner hereafter prescribed.

But if Time-keepers should be brought into Use at Sea, the apparent Time deduced from an altitude of the Sun must be corrected by the Equation of time, and the mean Time found compared with that shewn by the Watch; the Difference will be the Longitude in Time from the Meridian by which the Watch was set, as near as the Going of the Watch can be depended upon.

The Equation of Time is computed by taking the Difference of the Sun's true right Ascension and his mean Longitude corrected by the Equation of the Equinoxes in right Ascension, and turning it into Time at the Rate of 1' to 15'. &c. The Equation of Time will be additive or subtractive as the Sun's true right Ascension is greater or less than his mean Longitude so corrected.

The Time of the Sun's Semidiameter passing the Meridian, Page III. serves to reduce an Observation of a Transit of the preceding or subsequent Limb over the Meridian to that of the Center, when only One was observed. It signifies a Portion of apparent Time, or even mean Time, the Difference being absolutely insensible upon so small an interval. It is found thus: Increase the Sun's Semidiameter in the Ratio of the Cosine of his Declination to the Radius, to find his Semidiameter in right Ascension, which turned into Time at the Rate of 1' to 15'. and 1" to 15" gives the Time required. The Sun's Semidiameter in right Ascension is readily found by adding the Log. Cosine of his Declination to the logistic Logarithm of his Semidiameter, the Sum is the logistic Logarithm of his Semidiameter in right Ascension; which divided by 15 gives the Time of his Semidiameter passing the Meridian. If the Clock by which the Observation is made be regulated according to the sidereal Time, this Quantity must be increased in the Ratio of 365 to 366, if great Precision is required. From the Time of the Sun's Semidiameter passing the Meridian may also be found the Time of its passing the horizontal or vertical wire of Quadrant or Sextant, which on some Occasions may have its Use.

The Semidiameter of the Sun, is necessary to reduce the observed Altitude of his upper or lower Limb to that of the Center; also to reduce the observed Distance of the Moon's nearest Limb from the Sun's nearest Limb to the Distance of the Centers. It is also useful to Astronomers to verify or ascertain the Exactness of the Scale of their Micrometers, by comparison with the measure of the Sun's horizontal Diameter. This Practice is particularly useful in solar Eclipses, when the Distance of the Cusps or the Verse Sine of the uneclipsed Part has been measured with the micrometer. The Semidiameters of the Sun in *Mayer's* Tables, on which all the Calculations respecting the Sun and Moon are made, suppose the Semidiameter at the mean Distance to be 16'. 2", 8. which *Mr. Mayer* says he deduced from above 130 Observations taken with his Six Feet mural Quadrant, which seemed to him not ill adapted to the Purpose. It may not be amiss to take this

Opportunity to remark, that the Quadrant here mentioned was given to the *University of Gottingen* by his late Majesty, and was made by that ingenious Artist the late Mr. *John Bird* after the Model of the Eight Feet mural Arch, which he finished for the *Royal Observatory at Greenwich*, and put up there in the Year 1750. Mr. *Mayer* made his Observations with his Six Feet mural Arch, from the Year 1756, to the Time of his Decease; with it he settled the mean Obliquity of the *Ecliptic* to the Beginning of the Year 1756, at $23^{\circ}.28'.16''$, which Dr. *Bradley* settled by his Observations, reduced to the Year 1750, at $23^{\circ}.28'.18''$. The Difference is agreeable to what ought to arise from the gradual Diminution of the Obliquity of the *Ecliptic* at the Rate of about $\frac{1}{2}$ a Second in a Year. The same Instrument he also used in settling the Elements of his solar Tables; and it is most probable that with the same he settled his Table of Refractions at the End of his solar Tables; the Agreement of this Table with Dr. *Bradley's*, see Page 1st of *Requisite Tables* (being both suited to the same Temperature of the Air) is so great, that they seem rather like One and the same than two different Tables.

The hourly Motion of the Sun is useful in computing solar and lunar Eclipses; also in correcting the assumed Longitude of the Ship, in order to find the Time from an Observation of the Distance of the Moon from the Sun, independent of the Distances contained in the *Nautical Ephemeris*; See *British Mariner's Guide*, Page 49, and Table at the End of the same, Page 25. The Logarithm of the Sun's Distance is useful in the Calculation of the Places of the Planets and Comets. The Place of the Moon's Node signifies its mean Longitude, and is necessary for finding the Equation of the equinoctial Points both in Longitude and right Ascension, the Equation of the Obliquity of the *Ecliptic*, and the Deviations of the fixed Stars in right Ascension and Declination.

The Eclipses of Jupiter's Satellites are well known to afford the readiest, and for general Practice the best Method of settling the Longitudes of Places at Land; and it is by their Means principally that Geography has been so much reformed within a Century past, and the Positions of most distant Places determined with equal Accuracy to the nearest. It was hoped that some Means might be found of using proper Telescopes on Shipboard to observe these Eclipses; and could this be effected, it would be of great Service in ascertaining the Longitude of a Ship from time to time. In my Voyage to *Barbadoes*, under the Direction of the COMMISSIONERS OF LONGITUDE, in 1763 I made a full Trial of the late Mr. *Irwin's* Marine Chair proposed for this Purpose; but could not derive any Advantage from the Use of it; and, considering the great Power requisite in a Telescope for making these Observations well, and the Violence as well as irregularities of the Motion of a Ship, I am afraid the complete Management of a Telescope on Shipboard will always remain among the *Desiderata*. However, I would not be understood to mean to discourage any

Attempt founded upon good Principles to get over this Difficulty.

The Telescopes proper for observing the Eclipses of Jupiter's Satellites, are common refracting Telescopes from 15 to 20 Feet, reflecting Telescopes of 18 Inches or Two Feet focal Length, and Telescopes of Mr. *Dolland's* Construction with Two Object Glasses from 5 to 10 Feet; or, which are still more convenient, those of 46 Inches focal Length, constructed with Three Object Glasses, which are as manageable as reflecting Telescopes, and perform as much as those which he makes of 10 Feet with Two Object Glasses.

The Eclipses of Jupiter's Satellites are observed by Astronomers at Land, as well in order to provide Materials for improving the Theories and Tables of their Motions, as for the sake of Comparison with the corresponding Observations which may be made by Persons in different Parts of the Globe, whereby the Longitude of such Places will be accurately ascertained. It is indeed to be lamented that Persons, who visit distant Countries, are not more diligent to multiply Observations of this Kind; for want of which, the Observations made by Astronomers in established Observatories lose Half their Use, and the Improvement of Geography is retarded. But it is, to be hoped that an Emulation will spring up among those who may have Opportunities of rendering so useful a Service to the Public, to incite them to watch diligently for the Occasions of observing these Eclipses carefully, particularly of the First and Second, which are most exact for the Purpose. The Eclipses, carefully calculated and set down in the *Ephemeris*, will serve to advertise them and Observers in general of the Times when they should attend to these Observations. The Person, who shall be under any Meridian different from *Greenwich*, must turn his Difference of Longitude into Time: See *Requisite Tables*, Page 38, and add it to or subtract it from the Time of the Eclipse set down in the *Ephemeris*, according as he is to the East or West of *Greenwich*, to find the apparent Time at which the Eclipse will happen at his Meridian, nearly. He must further take care to regulate his Watch or Clock by apparent Time, or at least to know the Difference, as well in order to apprize him of the Time to look out for the Eclipse, as for ascertaining the apparent Time exactly at which he shall observe it. Equal Altitudes of the Sun or Stars taken with an Astronomical Quadrant afford the best Means of regulating Clocks and Watches for occasional Observations; or they may be taken with a *Hadley's* Quadrant, by Reflection from a Basin of Water or Quick-silver, or from the Horizon of the Sea, if the Observer has an open Prospect, and is not elevated above 5 or 600 Feet above the Level of the Sea. But, if Opportunity does not admit of taking equal Altitudes, the Time may be determined from One Altitude taken in any of the Methods above-mentioned, at least Two or three Points of the Compass distant from the Meridian, but the nearer to the East or West the better, the Latitude of the Place being known, or being found by Observations of the Meridian Altitude of the Sun or Stars made
on

on Purpose. It will be better to take several Altitudes in order to take a mean of the Results for greater Certainty. And if one Star be observed to the East and the other to the West of the Meridian, the Time will be determined with rather more Certainty. The Manner of computing the apparent Time from the Altitude of the Sun or a Star is shewn by Problems VIII. and IX. Pages 25 and 26 of the Explanation and Use of the *Requisite Tables*.

The Observer, being in a Place whose Longitude is well known, should be settled at his Telescope Three Minutes before the expected Time of an Immersion of the first Satellite; Six or Eight Minutes before that of the second and third Satellites; and a Quarter of an Hour or more before that of the fourth Satellite; chiefly on account of the Uncertainty of their Theories; but if the Longitude of the Place is very uncertain, he must begin to look out for the Eclipse proportionably sooner: Thus, if the Longitude of the Place is uncertain to 3 Degrees, answering to 12 Minutes of Time, he ought to fix himself to his Telescope 12 Minutes sooner than is mentioned above. Nevertheless, when he has observed one Eclipse of any Satellite, and thereby found the Error of the Tables, he may allow the same Correction to the Calculations of the *Ephemeris* for several Months, which will advertise him very nearly of the Time of expecting the Eclipses of the same Satellite, and dispense with his attending so long.

The Immersions signify the Instant of the Disappearance of the Satellite by entering into the Shadow of Jupiter; and the Emersions signify the first Instant of its Appearance at coming out of the same. They generally happen when the Satellite is at some Distance from the Body of Jupiter, except near the Opposition of Jupiter to the Sun, when the Satellite approaches nearer to his Body. Before the Opposition of Jupiter to the Sun the Immersions and Emersions happen on the West Side of Jupiter, and after the Opposition on the East Side; but, if an Astronomical Telescope be used, which reverses Objects, the Appearance will be directly the contrary. Before the Opposition, the Immersions only of the first Satellite are visible; and after the Opposition, the Emersions only. The same is generally the Case with respect to the second Satellite; both the Phenomena of the same Eclipse are frequently observable in the two outer Satellites. The Immersions and Emersions marked with an Asterisk in the *Ephemeris*, are those visible at *Greenwich*.

To know if an Eclipse will be visible in any Place, find whether Jupiter be 8° . above the Horizon of the Place, and the Sun as much below it. This may be done near enough by a celestial Globe: Otherwise, the Time of the Sun's Rising and Setting may be found for any Latitude by a Table of semidiurnal Arcs, contained in the popular Book called *The Mariner's Compass Rectified*; and many other Books; the Time of Jupiter's Rising and Setting may also be found from the Time of his passing the Meridian and Declination set

down in the *Ephemeris*, with the Help of the same Table of semi-diurnal Arcs; adding or subtracting the semi-diurnal Arc answering to the same Declination of the Sun: Remembering always, that if Jupiter's Declination and the Latitude of the Place are of the same Denomination, the semi-diurnal Arc will be more than Six Hours, and if they are of contrary Denominations, will be less than Six Hours. But it may be easier found whether the Eclipse will be visible at *Greenwich*, or whether it should be properly marked with an Asterisk, By the Tables, Page 28—31, annexed to the *Nautical Almanac* of 1772.

The Immerfion or Emerfion of any Satellite being carefully observed in any Place according to apparent Time, the Longitude from *Greenwich* is found immediately by taking the Difference of the Observation from the corresponding Time shewn in the *Ephemeris*, which must be turned into Degrèes, &c. by *Requisite Tables*, Page 38; and will be East or West of *Greenwich*, as the Time observed is more or less than that of the *Ephemeris*.

Example; Suppose an Emerfion of the first Satellite should be observed at the *Cape of Good Hope*, May 9, 1767, at $10^h. 46'. 45''$ apparent Time: The Time by the *Ephemeris* being $9^h. 33'. 12''$ the Difference is $1^h. 13'. 33''$, whence the Longitude of the *Cape* should be $18^{\circ}. 23'. 15''$ East of *Greenwich*, because the Time supposed to be observed at the *Cape* is more than that of the *Ephemeris*.

It is to be observed that a correspondent Observation of an Eclipse of a Satellite of Jupiter, made under a well-known Meridian, is to be preferred to the Calculations of the *Ephemeris* for comparing with an Observation made in a Meridian whose Longitude is required; but if no corresponding Observation can be obtained, as is frequently the Case, it will be best to find what correction the Calculations of the *Ephemeris* require by the nearest Observations to the given Time that can be obtained; which Correction applied to the Calculation of the given Eclipse in the *Ephemeris*, renders it almost Equivalent to an actual Observation.

The Longitudes and Latitudes of the Planets, Page IV. serve to know where to look for them in the Heavens, and when their Places may be conveniently settled by comparing them with fixed Stars by the Help of a Micrometer in a Telescope. They also shew when they are in the most important Points of their Orbits, where it is most material to observe them. They also serve to enable Persons less skilled to distinguish them from the fixed Stars. Their Declinations and the apparent Times of their passing the Meridian are particularly useful to Astronomers who are furnished with Quadrants and Transit Instruments well fixed in the Meridian, in setting their Instruments for observing their right Ascensions and Declinations.

The apparent Time of a Planet's passing the Meridian may be computed thus; the Planet's Right Ascension being calculated from its Longitude and Latitude, and turned into Time, subtract the Sun's Right Ascension at Noon in Time from it, to find the Time of the

Planet's passing the Meridian nearly, which call T ; take the difference of the $\odot$ and Planet's daily Variations in right Ascension in Time, if the Planet is progressive in right Ascension, or the Sun, if it is retrograde, which call X ; then say by the Rule of Proportion;

As $14^h \mp X : T :: X : e$ and $T \pm e$ will be correct Time of the Planet's passing the Meridian. The upper Signs are to be used both to X and e if the Planet's progressive Motion in right Ascension be greater than that of the Sun; in any other Case the lower Signs are to be made use of.

But perhaps it may be found more readily by continual Approximation as follows. Take the proportional Part of the Difference or Sum of the $\odot$ or Planets's daily Motion in right Ascension, answering to the Time of the Planet's passing the Meridian, found nearly, in Proportion to 24^h . and take a further like proportional Part of this proportional Part; and again of this last, and so on as far as is necessary. The Sum of all these proportional Parts added to the Time of the Planet's passing the Meridian found nearly, if the Planet's progressive Motion in right Ascension is greater than that of the Sun, otherwise subtracted, gives the apparent Time of the Planet's passing the Meridian.

Example: Let it be required to find the Time of the Moon's passing the Meridian, July 1, 1767.

The Sun's right Ascension in Time July 1st is, $6^h 40'. 25''$ and July 2d, $6^h 44'. 33''$ by the *Ephemeris*. Therefore his daily Motion in right Ascension is $4'. 8''$. The Moon's right Ascension July 1st at Noon by the *Ephemeris* is $159^\circ. 2'$ answering to $10^h. 36'. 8''$ of Time, and July 2d is $169^\circ. 39'$ answering to $11^h. 18'. 36''$. The Difference is $42'. 28''$ of Time, from which $4'. 8''$ being subtracted, leaves $38'. 20''$. Subtract $6^h. 40'. 20''$ the Sun's right Ascension July 1st at Noon, from $10^h. 36'. 8''$ the Moon's right Ascension the same Noon, the Remainder $3^h. 55'. 43''$ is the Approximate Time of the Moon's passing the Meridian. The proportional Part of $38'. 20''$, answering to this, is $6'. 17''$, and the proportional Part of $6'. 17''$ is $9''$; therefore $6'. 17''$ and $9''$ or $6'. 26''$ added to $3^h. 55'. 43''$ give $4^h. 2'. 9''$, the apparent Time of the Moon's passing the Meridian. In the *Ephemeris* it is $4^h. 2'$. It may also be computed by taking the Difference of the Moon's right Ascension at Noon and Midnight, but then Half the Sun's daily Variation in right Ascension must be made use of, and Proportion must be made for 12 instead of 24 Hours: and if the Moon passed the Meridian after Midnight, the Sun's right Ascension at Midnight must be used, which is a Mean between his right Ascensions on the preceding and subsequent Noon. For the Planets it will be sufficient to take the first proportional Part only.

The Days of the Oppositions, Quadratures, &c. of the Planets to the Sun, are Times at which they ought to be observed in fixed Observatories, for settling the Elements of their Orbits by a Series of several Years Observations.

The Vth, VIth, VIIth, VIIIth, IXth, Xth, and XIth Pages of each Month contain the Moon's Place, and all the Circumstances relating to her Motion, and her Distances from the Sun and proper Stars, from which her Distance should be observed for finding the Longitude at Sea, The Longitude, Latitude, and Declination of the Moon, and Time of her passing the Meridian, afford the like Uses of the same Circumstances of the Planetary Motions, and many more besides. For the sake of greater Precision, the Moon's Longitude, Latitude, Right Ascension, Declination, Semidiameter, horizontal Parallax, with its proportional Logarithm, are computed Twice a Day, to Noon and Midnight, and may readily be inferred to any intermediate Time with the greatest Exactness.

Example; Let it be required to find the Moon's Longitude and Latitude, &c. July 16, 1767, at 16^h. 22'. 16".

First to find the Longitude.

The Moon's Longitude, July 16, at 12^h. is 0°. 6'. 40'. 25" and July 17, at Noon, 0°. 13'. 47'. 48" the Difference 7°. 7'. 23" is the Moon's Motion in 12 Hours; say then by the Rule of Proportion :

As 12^h is to 4^h. 22'. 16" (the Excess of 16^h. 22'. 16" above 12^h) so is 7°. 7'. 23" to 2°. 35'. 41" but this must be corrected on account of the Moon's unequal Motion in 12 Hours, by the Table of Equation of second Difference annexed to Mr. Taylor's *Sexagesimal Table*, Page 244—247 : For this Purpose take out of the *Ephemeris* the Two Longitudes of the Moon next preceding the given Time, and the Longitudes immediately following it, and set them down in Order one after another as follows ;

	D's Long. by the <i>Ephemeris</i> .	1st Diff.	2d Diff.	Mean of 2d Diff.
1767,	' ' ' "	' ' "		
July 16, Noon	11. 29. 29. 34	7. 10. 51	' "	' "
Midnight	0. 6. 40. 25	7. 7. 23	3. 28	
17, Noon	0. 13. 47. 48	7. 3. 39	3. 44	3. 36
Midnight	0. 20. 51. 27			

Take their Differences, 7°. 10'. 51", 7°. 7'. 23", 7°. 3'. 39"; take the Differences of these Differences, or the second Difference 3'. 28", 3'. 44"; and take their Mean which is 3'. 36". Now look for the Equation of second Difference, answering to 4^h. 22' after Midnight, found on the Side, and 3'. 36" at the Top, which will be found = 24", and which, according to the Remark at the Bottom of the Table, must be added to 2°. 35'. 41", the first proportional Part, because the Motion in 12 Hours or first Differences are decreasing, the Sum 2°. 36'. 5" added to 0°. 6'. 40'. 25", the Moon's Longitude at Midnight, gives 0°. 9'. 16'. 30", the Moon's true Longitude, and is as correct as the Longitudes from which it is deduced.

N. B. If the first Differences of the Four Longitudes of the Moon taken out first increase and then decrease, or, *vice versa*, first decrease and then increase, take Half the Difference of the Two second Differences for the Mean second Difference, with which take out the Equation of second Difference, and add or subtract it as the First first Difference is greater or less than the Third first Difference.

To find the Moon's Latitude,

Take out of the *Ephemeris* the Two Latitudes preceding and Two following the given Time, and set them down in Order, and take their first and second Differences, and the Mean of the Two second Differences; find the proportional Part of the Middle first Difference answering to the Hours and Minutes, &c. of the given Time after Noon or Midnight; which correct in the following Manner: Entering Table of Equation of second Difference, Page 244—247, with the Hour from Noon or Midnight on the Side, and the Mean second Difference at Top, take out the corresponding Number of Seconds, which added to or subtracted from the proportional Part found above, according as the Motion in 12 Hours or first Difference is decreasing or increasing; or, more generally, according as First first Difference is greater or less than Third first Difference, gives the proportional Part corrected; which now added to or subtracted from the Moon's Latitude at the preceding Noon or Midnight, as the Latitude in these 12 Hours is increasing or decreasing, gives the Moon's Latitude correct.

Example: The Moon's Latitude is required, July 16, 1767, at 16^h. 22'. 16".

	D's Lat. by the <i>Ephemeris</i> .	1st Dif.	2d Dif.	Mean of 2d Dif.
1767,				
July 16, Noon	4° 31' 16" N.	18. 26	' 36	' "
Midnight	4. 49. 36	13. 50	4. 40	4. 40
17, Noon	5. 3. 26	9. 6	4. 44	
Midnight	5. 12. 32			

The Moon's Latitude July 16 at Midnight being 4°. 49'. 36" N. and the Motion in the next 12 Hours being 13'. 50" say by Proportion,

As 12^h. is to 4^h. 22' 16", so is 13'. 50" to 5'. 2": but this must be corrected by adding 32", the Equation of second Difference, answering to the Hour 4^h. 22', and the Mean second Difference 4'. 40", because the first Differences are decreasing, or rather because the first of them 18'. 26", is greater than the last of them 9'. 6", therefore the proportional Part corrected is 5'. 2" + 32" = 5'. 34", which added to 4°. 49'. 36", gives 4°. 55'. 10" N. the Moon's Latitude correct.

Remarks on some Circumstances necessary to be attended to, in order to obtain and apply the Correction of second Differences rightly in computing the Moon's Latitude.

I. If the Moon's Latitude taken out of the *Ephemeris* for Noon and Midnight changes its Denomination from North to South or from South to North, the Sum of the Two Latitudes of contrary Denominations, where the Change happens, is to be accounted the first Difference in that Place.

II. If the Three first Differences first increase and then decrease, or *vice versa*, first decrease and then increase, Half the Difference of the Two second Differences is to be taken for the Mean second Difference.

III. If the Series of Four Latitudes taken out should first increase and then decrease about the Moon's greatest Latitudes, take the Sum of the Two first Differences standing on each Side of the greatest Latitude for the second Difference in that Place; correct the Moon's Latitude at Noon or Midnight by the simple proportional Part first found; and to the Latitude so corrected, add always in this Case the Equation of second Difference from Page 244---247, answering to the Mean second Differences.

Before I quit this Subject of Interpolation by second Differences, I shall point out another Method, by which the same End may be obtained more readily, and with fewer Rules, by those who are well acquainted with algebraic Subtraction and Addition, and the Manner of applying the Signs in those Operations. Subtract each Latitude from the following for the first Differences, to which prefix the Sign — if the Latitudes decrease: and Subtract each first Difference, thus found, from the following one of the same order for the second Differences. Half the Sum of the Two second Differences standing on each Side of the Interval to be interpolated, is to be accounted the Mean second Difference; the Equation corresponding to it by Table, Page 244---247, is to be applied always with the contrary Sign.

These Operations are to be performed, and the Signs to be applied as in algebraic Subtraction and Addition. Note further, if the four given Latitudes change their denomination, call the second Latitude +, and those of a contrary Denomination —.

The Moon's Declination may be found at any Hour in the same Manner as her Latitude; but as the Correction arising from second Differences will never exceed $2\frac{1}{2}$, this may be neglected on most Occasions; but if any one is desirous to obtain the Declination true to a Minute, the Correction is easily applied, as shewn above.

The other Articles of Page VI. and VII. *viz.* the Moon's Right Ascension, her Semidiameter, horizontal Parallax, with its proportional Logarithm, and the Distances contained in the Four last Pages of the Month, may be all found correctly by even Porportion, without requiring any Allowance on account of second Differences. The proportional Part of the Moon's Longitude, &c. for any Hour may be found very readily by the Help of the Table of porportional Logarithms, Page 39—55 of the *Requisite Tables*.

The Moon's Longitude and Latitude are used in computing her Distances from the Sun and Stars contained in the Four last Pages of

the Month, as well as in the Appulses to Stars pointed out in Page I, and, jointly with her Parallax and Semidiameter, are necessary for computing the Eclipses of the Sun and Moon, and the Occultations of fixt Stars and Planets by the Moon. They also facilitate the Calculation of the Longitude of any Place from an observed Eclipse of the Sun, or Occultation of a Star or Planet by the Moon: Or, if the Meridian be well known, the Parallax and Semidiameter serve to deduce the Moon's true Place in the Heavens from the Observation, which compared with that given by the *Ephemeris* shews the Error of the Tables at the Time. The Moon's Semidiameter and Parallax are applied in correcting almost all Observations of the Moon. The proportional Logarithms of the Moon's Parallax serve further to facilitate the Calculations of Parallaxes.

The Moon's right Ascension and Declination are useful to compute her Altitude at any Time, particularly at the Observation of her Distance from the Sun or a Star, supposing it was neglected to be or could not be observed properly; which latter Case may sometimes happen in the Night, though I think but rarely; the utmost Accuracy therein not being required for the Calculations of Refraction and Parallax. See *British Mariner's Guide*, Page 57, and *Requisite Tables*, Page 24. The Moon's Declination, with her Semidiameter and Parallax, serve for finding the Latitude by the Meridian Altitude of her upper and lower Limb observed at Sea. See *British Mariner's Guide*, Page 93, and *Requisite Tables*, Page 15. The Moon's right Ascension and Declination serve also to compute the Time from her Altitude observed at the Observation of her Distance from a Star; whence the Longitude may be inferred, tho' no Altitude of the Sun or a Star was taken for regulating the Time. See *British Mariner's Guide*, Page 61, and Mr. Edwards's 5th Problem annexed to the *Nautical Almanac* of 1781, Page 10.

The Distances of the Moon from the Sun and fixed Stars, contained in the VIIIth, IXth, Xth and XIth Pages of the Month are set down to every Three Hours of apparent Time by the Meridian of *Greenwich*, and are designed to relieve the Mariner from the Necessity of a Calculation, which he might think prolix and troublesome, and to enable him, when compared with the Distance observed carefully at Sea, to infer his Longitude readily and with little Danger of Mistake to a Degree of Exactness that may be thought sufficient for most nautical Purposes. But useful and valuable as the Practice of this Method may be at present, it is a Remark not unworthy our Notice, that every future Improvement of the Lunar Tables, as well as the Instruments, will bring it nearer and nearer to Perfection.

The Moon's Distances are computed both from the Sun and proper Stars, and generally from One Object on each Side of her, to afford the Mariner a greater Number of Opportunities of Observation, and a Means of attaining a greater Degree of Exactness. The Distances from the Sun are computed between 40° and 120° of Distance. While the Moon is between the Distances of 20° and 40° from the Sun, her Distance is computed only from a Star on the contrary Side

that the Sun is. When she is between the Distances of 40° and 90° from the Sun, her Distance is computed both from the Sun and from a Star on the contrary Side to the Sun; when the Moon is above 90° from the Sun her Distance is computed from Two Stars, one on each Side of her; though still her Distance is computed also from the Sun from 90° to 120° . Though the Distance of the Moon from the Sun or Star, well observed with a good Instrument, is sufficient to determine the Longitude, with the Help of the *Ephemeris*, always within a Degree, and generally much nearer, yet it will conduce to still greater Accuracy, if the Observer takes the Distance of the Moon from Two Stars, or the Sun and a Star, or, when the Moon is between 90° and 120° Distant from the Sun, from the Sun and Two Stars, if he can be so lucky as to obtain these several Observations.

The Longitude being computed from the Observations made with each Star respectively, the Mean of the Results is to be taken as probably approaching nearest to the true Longitude. In particular the Moon's Distance should be taken from Two Stars, or the Sun and a Star on each Side of her, as often as Opportunity permits, since the Mean of the Results will probably be at least as exact again as either separately, I mean as far as depends on any Imperfection of the Instruments, and unavoidable small Errors arising in the Use of them; Errors of these Kinds having a natural Tendency to correct each other; for that small Error which arises from the Lunar Tables will affect the Result from either Star equally. But the Error of *Mayer's* last Lunar Tables are corrected from a series of Dr. *Bradley's* Observations of 9 Years by Mr. *Charles Mason* in 1778, being these made use of for the *Nautical Almanac* of 1789, and the subsequent ones, probably never exceeding $30''$, the Uncertainty hence arising in the Determination of the Longitude, can scarcely ever exceed 17 Miles of Longitude, and generally will be much less.

The Distances set down in the *Ephemeris*, afford the Observer a ready Means of knowing the Star from which the Moon's Distance is to be observed; for he has nothing to do but to set his Quadrant to the Distance computed roughly from the *Ephemeris*, neglecting the Seconds, at the apparent Time estimated nearly by the Meridian of *Greenwich*; and direct his Sight to the East or West of the Moon, according as the Distance at *Greenwich* is found in the VIIIth and IXth, or Xth and XIth Pages of the Month; and having found the Moon upon little Speculum, let him give a Sweep with the Quadrant to the Right and Left, and he will find the Star he seeks for, if above the Horizon and the Air be clear, nearly in a Line perpendicular to the Line of the Moon's Horns or longer Axis, or, which is the same Thing, in the Line of the Moon's shorter Axis produced. The Star is always one of the brightest, so that there is little Danger of mistaking another for it, if the preceding Directions are carefully observed. The Time at *Greenwich* is estimated nearly by turning the supposed Longitude from *Greenwich* into Time, by *Requisite Tables*, Page 38,

and adding it to or subtracting it from the apparent Time at the ship, as its Longitude is West or East of *Greenwich*. It will be sufficient if the distance be computed from the *Ephemeris* within 10', or 20', for setting the Quadrant. The principal Use of the Distances of the Moon from the Sun and fixt Stars; namely, in determining the Longitude by comparison with the corresponding Distances observed at Sea, is shewn in Problem XI. Page 37 of *Requisite Tables*.

The Distances contained in the *Ephemeris* were computed strictly to Noon and Midnight, and thence interpolated for every Three Hours according to the Method shewn for computing the Moon's Latitude Page 157—158; except that the Correction of second Differences at the Middle of the Interval to be interpolated, was taken $\frac{1}{8}$ of the Mean of the Two second Differences, and at the First and Third Quarter of the Interval was taken $\frac{3}{4}$ of the Correction just found at the Middle of the Interval; instead of consulting Mr. *Taylor's* Table, Page 248 and 249, which would however have given the same Result. But, at the first 12 Hours, when the Distances of the Moon from a Star begin, and the last 12 Hours, when the Distances end, there being only One second Difference instead of Two second Differences on each Side to take a Mean of, this Method fails in these Cases, and therefore the following is to be substituted in its stead, being derived from Sir *Isaac Newton's* Solution of the Problem of drawing a Curve through the Extremities of any Number of given Ordinates. *Phil. Nat. Princ. Math.* Page 486 Edit. *Londini* 1726, or Dr. *Horsley's* complete Edition of Sir *Isaac Newton's* Works, Vol. 3d. Page 128.

From Four Distances at Noon and Midnight computed strictly to interpolate Three Distances at the III^d, VIth, and IXth Hour of the first or last Interval.

Subtract each Distance from the following, for the first Difference, and prefix the Sign —, if the Distances decrease. Subtract each first Difference thus found from the following One of the same Order, for the second Difference: And in like Manner subtract the First second Difference from the following for the third Difference; applying the Signs as in algebraic Subtraction. Denote the first or last first Difference by b ; the first or last second Difference by c , according as the Interpolation to be made is for the first or last 12 Hours; denote also the third Difference by d , and, a being put to signify the Distance at the Beginning of the Interval, the interpolated Distances will be as follows:

$$\begin{array}{l} \text{At III^d Hour of first Interval} \quad a + \frac{1}{4}b - \frac{3}{32}c + \frac{7}{128}d \\ \text{At VIth Hour of first Interval} \quad a + \frac{1}{2}b - \frac{1}{8}c + \frac{1}{16}d \\ \text{At IXth Hour of first Interval} \quad a + \frac{3}{4}b - \frac{3}{32}c + \frac{1}{128}d \end{array}$$

Or,

$$\begin{array}{l} \text{At III^d Hour of last Interval} \quad a + \frac{1}{4}b - \frac{3}{32}c - \frac{5}{128}d \\ \text{At VIth Hour of last Interval} \quad a + \frac{1}{2}b - \frac{1}{8}c - \frac{1}{16}d \\ \text{At IXth Hour of last Interval} \quad a + \frac{3}{4}b - \frac{3}{32}c - \frac{1}{128}d \end{array}$$

X

In adapting these Formulæ to Numbers, great Care must be taken about the right Application of the Signs. Thus if b , c , or d is Negative, apply the Number expressing the Value of that Term of the Formula where it is found with a contrary Sign to that of the Formula

Let me add in this Place, that if in filling up the first and last Intervals, a new second Difference has been supposed in arithmetical Progression with the Two given ones, in order to take a mean between it and the first or last second Difference, the Interpolation at the Middle of the Interval or VIth Hour will be had true, the same as if the above Formulæ had been used: But at the Interpolation of the first and third Quarter there will be an Error of $\frac{1}{128}$ third Difference; which will be corrected, by applying $+\frac{1}{128}d$ or third Difference, to Number found at the first Quarter of the Interval, and $-\frac{1}{128}d$ to that found at the third Quarter of the Interval; equally the same whether it be the first or last Interval.

The Configurations of Jupiter's Satellites, Page XIIth and last, exhibit the apparent Positions of the Satellites with respect to each other, and to Jupiter at such an Hour of the Evening or Night as they are most likely to be observed, and serve to distinguish the Satellites from one another. Jupiter is distinguished by the Mark $\bigcirc$, and the Satellites by Points with Figures annexed, the Figure 1 signifying the first Satellite, 2 the second Satellite, &c. When the Satellite is approaching towards Jupiter, the Figure is put between Jupiter and the Point; and when the Satellite is receding from Jupiter, the Figure is put on the other Side of the Point. The Satellites are in the superior Parts of their Orbits, or furthest from the Earth, when they are marked to the right hand or West of Jupiter approaching him; or to the left Hand or East of Jupiter receding from him; but are in the inferior Part of their Orbits, or nearest to the Earth, when they are marked to the right Hand or West of Jupiter receding from him, or to the left or East of Jupiter approaching him. The Cypher $\bigcirc$, sometimes annexed to the Figure of the Satellite towards the Margin, signifies, that it is invisible on the Face of Jupiter; and the black Mark $\bullet$, signifies that it is invisible, being eclipsed in Jupiter's Shadow, or, behind Jupiter eclipsed by his body.

THE END.



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